AN OPERATIONS CENTRED MODEL OF SERVICE QUALITY

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Contents

Abstract

Service quality is considered an important element of competitive advantage in service industries, and is increasingly being imposed upon public sector organisations as a requirement by government action and public expectation.

Effective management and improvement of service quality requires a clear identification of the relevant quality issues and their relationship with the operations characteristics of the service. However service and service quality are complex and multi-dimensional and these issues and relationships are not always clear.

The background to service, service operations and service quality is presented and published models of service quality are analysed. These are found wanting in terms of the ease with which they link to operations issues and decisions. A three dimensional model of service quality is described, consisting of the dimensions Soft – Hard, Subjective – Objective and Process – Outcome, and is shown to clearly link with service operations decisions. The model is used to predict the operations characteristics which will lead to good service quality in two different service industries; Retail Banking and Primary and Secondary Education.

Testing of the predictions of the model was carried out in retail banking by interviewing customers and staff at bank branches noted for a high quality awareness and the predictions were substantially fulfilled. A questionnaire survey of schools was used to test the predictions in education. The influence of external variables on quality was identified and corrected for. It was found that about 50% of quality variance was due to external factors. Internal factors which correlated with the residual performance variation were found to be consistent with the predictions of the model.

The three dimensional model has been demonstrated to predict the influence of service operations decisions on quality within two quite disparate service industries. While generality cannot be claimed on the basis of only two examples it is concluded that there is enough evidence to suggest general applicability and to justify further validation.

Glossary

Empty Nester	Market research term for those consumers whose children have grown up and left home.
Free School Meals	Children from economically deprived backgrounds are entitled to meals at lunchtime at no cost to themselves.
GCSE	General Certificate of Secondary Education. Subject based examinations/assessments generally taken at the age of 15 or 16. The expected outcome is 5 'good' subject passes.
Key Stage	School education is currently divided into 4 key stages at which there are defined 'normal' performances at fixed ages. At present only the key stage 2 results are published.
OFSTED	Office for Standards in Education. A national body responsible for standards in school education. It sub-contracts regular inspection of schools to various organisations with qualified teams of inspectors.
SATs	Standard Attainment Tests. Tests taken at particular stages during a pupil's school career. Results for schools are published nationally. (see Key Stage)
School Governors	Ultimate responsibility for the operation of each public sector school lies with its Governing Body. This is composed of staff, parent and local authority representatives, plus co-opted members from the local community. School governors are unpaid volunteers.
Statements	Children with behavioural and/or learning difficulties are first identified by their schools. At the end of a process of assessment such children may be 'Statemented' - a formal recognition of their difficulties leading to the funding of support resources.

1. Introduction

1.1 Background

Service Operations Management arose as a distinct discipline (distinct from Manufacturing Operations Management) in the 1970s and has slowly developed since. Most would agree, however, that the distinction is a matter of emphasis.

The perception that services as opposed to manufacturing were important came relatively late in the development of management theory and practice, although the importance of services was recognised as early as 1941 when Morris was able to write:

> "The emphasis ... is upon the services of the goods, not upon the goods themselves. Goods are wanted because they are capable of performing services - favourable events which occur at a point in time."

However, service has long since overtaken manufacturing as the major contributor to wealth generation and employment in the developed world (Palmer, (1994)).

The Service sector is important and efficient and effective service operations are just as important as efficient and effective manufacturing operations.

Operations Management is concerned with the management of the transformation process at the heart of any enterprise. It is probably the oldest recognised management discipline, with examples of formal planning, monitoring and control of production found as far back as ancient Egypt, and examples of division of labour, and precise task and workplace design found in the 4^{th} and 5^{th} centuries BC as far apart as Cyprus and China. (Galloway, 1998)

The emphasis throughout the history of operations management has been on the twin objectives of effectiveness and efficiency. Effectiveness can be simply defined as meeting market requirements, though the definition of the market and its requirements is not always simple. Efficiency is concerned with achieving this at minimum cost, and again, cost is not always a simple concept, particularly when time scale is taken into account.

The emphasis has varied with circumstances. From the industrial revolution through to the 1950s, it was primarily on efficiency, but with the rise of

globalisation and the rapid increase in manufacturing capacity after the Second World War, markets became much more competitive and effectiveness became a much stronger influence.

Quality has always been seen as an important element in effectiveness. Quality is almost always an element in the portfolio of attributes that make a product competitive. Real development of quality management did not arise until the 1920s when Dodge and Romig developed Statistical Quality Control, followed shortly thereafter by Walter Shewhart's development of the foundations of Statistical Process Control (Galloway, 1998). Quality as a real competitive issue began to become apparent in the 1950s, and led to the development of the Total Quality Movement. The importance of quality has continued to increase and it remains one of the main drivers of competitive advantage today.

1.2 Area of Study

This project is based upon the premise that quality is important, developed further in chapter 3, not only because it confers direct competitive advantage, but also because it reduces waste and that this is true both in manufacturing and service industries. The development of quality management like the development of operations management in general has, however, been dominated by manufacturing. Much of Service Operations Management is simply the application of tried and tested manufacturing management approaches to service industries, with more or less adjustment and greater or less success. This project is based upon the observation that the application of manufacturing concepts of quality management to services is not especially appropriate or successful. Services are different in important respects that have an important influence on quality. A key element in this is that service quality is defined by the customer to a far greater extent than product quality and with far less precision. This has led to a great deal of research into service quality, but from a customer/marketing perspective (see for example Parasuraman et al. (1985), Bitner, M. J. and Hubbert, A. R., (1994)). This is not always helpful to the operation.

The basic assumption behind this work is, therefore, that there is a need for a reconciliation of the issues and complexities surrounding service quality with the

requirements of operations management. At the end of the day, it is the operation that is responsible for delivering quality, and if quality is not defined and measured in a way that is relevant then this will only happen by chance. As Rosen and Karwan (1994, p39) write;

> "Marketing and operations need to pull in the same direction, with direction defined by the current and future preferences of customers in the chosen market segments"

The study thus embraces a number of diverse but linked areas. The general field of quality management is obviously central to the research, but it needs to be viewed both from an operations and a marketing perspective. It is in the interface between quality and (service) operations that the core of the work resides and it thus heavily depends upon clear definition in both of these areas. As will be shown in chapters 2 and 3, clarity of definition is not always straightforward. The service sector is extremely diverse and a similar diversity of interaction is to be expected.

1.3 Problem Definition

Service quality is seen as an essential tool of competitive advantage, and even in non-competitive environments financial, regulatory and even moral pressures are found. The service operation delivers this quality. The essence of the problem is that definitions and models of quality derived from manufacturing operations are poorly matched to the requirements of service industries, while definitions and models of quality derived from the marketing /consumer behaviour perspective do not map readily onto the needs of operations management. The research seeks to develop and validate a model of service quality that links essential elements of the service with structures and functions relevant to operations managers. In other words, to allow service quality to be defined in such a way that the needs of a particular service link readily to the operations design and control issues.

Its takes as axiomatic two propositions:

a) Quality is important.

b) It is the task of Operations to deliver quality.

1.4 The Research Objectives

The primary research objective is to demonstrate that a model of service quality relevant to the particular needs of service operations management can be developed and tested.

This depends upon two prior assumptions:

i) that such a model would be useful (strictly necessary only if the work is to be useful)

ii) that such a model does not already exist

These will be tested by reference to the literature.

The main objective can be broken down into three subsidiary questions as follows:

1. Do Operations decisions have a measurable and predictable effect upon service quality?

2. Does the effect of such decisions vary between different services, and is this variation is predictable?

3. Can a model be developed which will enable these effects to be predicted and measured?

Questions 1 and 2 are investigated both from the literature and by experiment, while the investigation of question 3 is the main aim of the primary research.

1.5 Thesis Structure

The particular issues of service and quality are first considered in chapters 2 and 3. Both are complex and multifaceted phenomena and their structure, definition and interaction are explored. This is then linked with an operations perspective leading into the development of a model of service quality relevant to operations needs in chapter 4.

The heart of the thesis is the validation of this model, and the methodological issues surrounding this are discussed in chapter 5, leading to a description of the research process.

Preliminary research was carried out in retail banking, and this is described in chapter 6, followed by the main research exercise carried out in primary and secondary education in chapter 7.

Detailed analysis of these findings (chapter 8) leads into conclusions on the value of the model proposed and recommendations for further development in chapter 9. In addition conclusions and recommendations specifically of value to providers of primary/secondary education are made, together with more general service recommendations.

2. Service and Service Operations

It was suggested in the previous chapter that service was complex and multifaceted and that this gave rise to particular problems for service operations management. This chapter will look in more detail at the nature of service and the impact of this upon service operations.

2.1 Service

Kotler, quoted by Lewis (1991) defines service thus

> "any activity or benefit that one party can offer to another that is essentially intangible" (p 17).

While Normann (1984) offers

> "a social act which takes place between the customer and representatives of the service company".

Whereas Shostack (1982) defines a service

> "Services cannot be possessed; they can only be experienced, created or participated in" (p 49)

and a service encounter as

> "a period of time during which the customer directly interacts with a service" (1984, p244)

Lewis and Entwistle (1990) define service as

> "a service is a deed, a performance, an effort" (p 42).

The essential element of all of these is the presence of a direct interaction between the customer and the service provider. However service cannot be separated from manufacture, since goods are frequently involved in the provision of the service.

> "..when a good is purchased there is usually an element of service included. Similarly a service is frequently augmented by a tangible product..." (Palmer, (1994), p2)

The increasing "servicisation" of manufacture (see for instance Vandermerwe (1993), Johnston (1994)) blurs the boundaries still further, and it can be convincingly argued that service is relevant to all "commercial" activities.

Galloway has argued (1996, 1) that where a world class manufacturer is striving to provide an excellent product (tangible) backed up by an excellent service, the world class service provider is seeking to provide an excellent service backed up by excellent tangibles. In other words, service is universally important, and service quality is seen as a key competitive factor.

Unlike manufacturing, service industries are not restricted to the commercial sector. Virtually all state and voluntary sector provision is service rather than manufacture. The essential characteristic of service rests in the concept of activities, benefits or experiences. Services require a customer to participate if they are to exist. Unlike goods which can be manufactured whether they are required or not, service cannot exist without the customer.

As a result service industries differ from manufacturing industries in the following ways (see for example Sasser et al. (1978), Palmer, (1994)) :

The customer is part of the service process. The service cannot take place in the absence of the customer. This is the origin of all the other differences.

Production and consumption of the service are simultaneous. An inevitable outcome of the necessary presence of the customer.

Service cannot be stocked. The simultaneous production and consumption of services means that stock cannot exist.

Service demand is extremely variable. Demand variability is an important issue in both manufacturing and services, but services often show large demand variation from hour to hour.

The perception of the service is subjective. To a degree the customer's perception of the service will depend upon the customer's expectations and experience. There is unlikely to be an agreed specification covering all aspects of the service, and given the variety of customers, such a specification would be unworkable.

Quality cannot be inspected in prior to use. Unlike manufacturing the service cannot be checked for quality before being offered to the customer.

These all have important implications for the effective and efficient management of the service operation.

2.1.1 Service Dimensions

The whole service experience is complex and multidimensional. Rust and Oliver (1994) suggest the model shown in figure 2.1. However this is too simplistic, with its suggestion that the service product is unitary and a model such as that shown in figure 2.2, is more realistic. In both cases, the relative importance of the elements of the service will vary. The terms used in these illustrations are defined thus:

Product is the core of the transaction, a physical good whose ownership changes. This need not necessarily be present.

Core Service Product. The specific features that the service is intended to provide.

Peripheral Service Products. Specific features that the service is designed to provide in support of the core service product.

Service Delivery. The mechanism and manner of delivery of all aspects of the service.

Service Environment. Not only the physical environment within which the service is offered, but the internal environment, including staff reward, control and training systems.

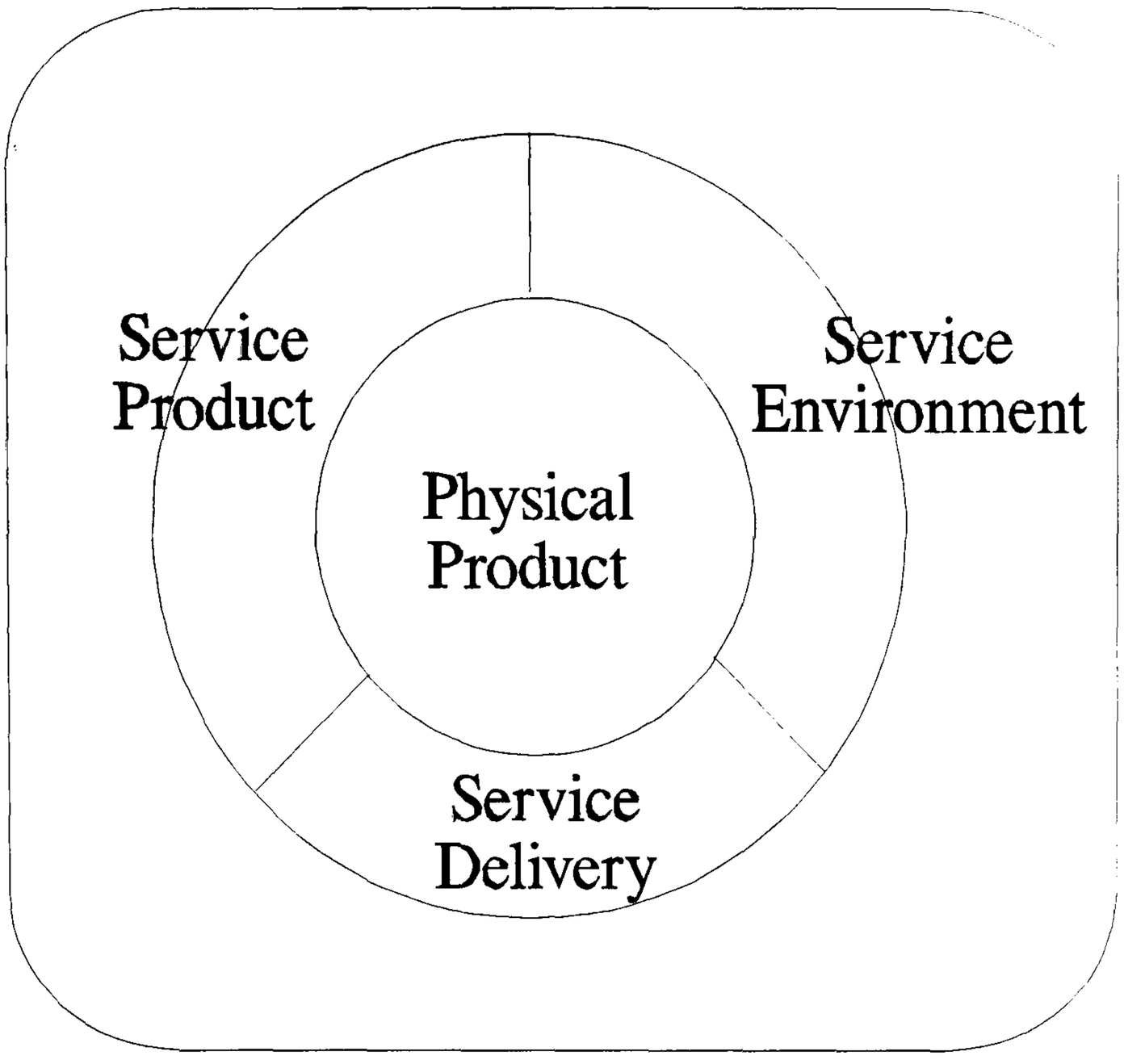

Figure 2.1. The Components of Service (Rust & Oliver)

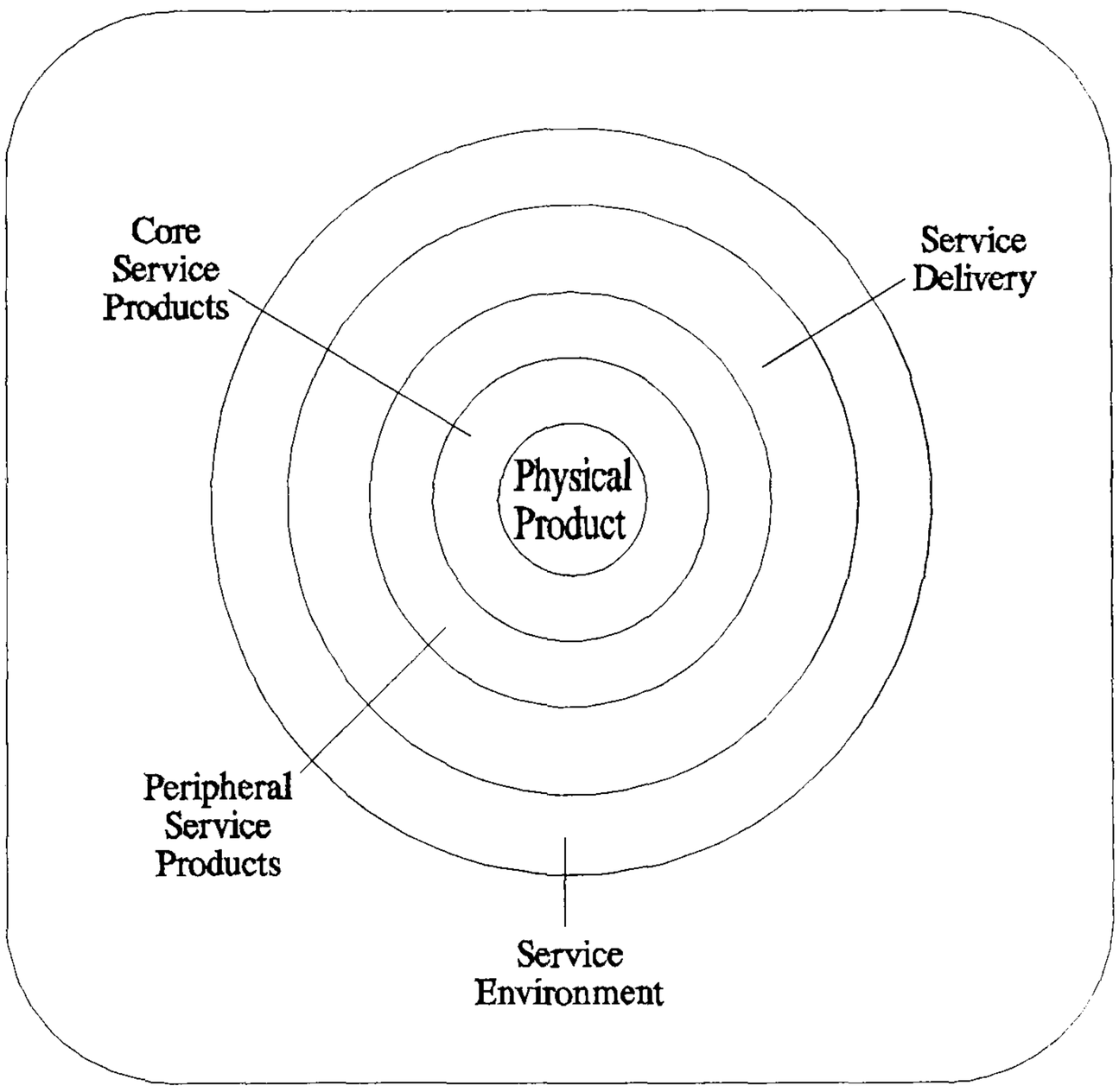

Figure 2.2. The Components of Service Enhanced

This model assumes a definable core service product, but many services are effectively multi-modal in that they do not have a single core, or that this core

varies as the customer progresses through the service cycle. An hotel perhaps provides accommodation as its core service, but many hotels also provide restaurant, bar, recreational and business facilities, often to outsiders as well as residents. All must meet the same standards if the Hotel is to be successful. The client follows a cycle of activities from check-in to room use, restaurant, bar and other facilities use and ultimately checkout. At any one time the core service is the one being used by the customer. In reality it might be better to think of a service as a set of overlapping targets of the type shown in figure 2.2, but with the relative importance and overlap varying both with the customer and with time. Manufacturing also shows a similar complexity in that a product undergoes a sequence of processes and this sequence may vary from product to product. Each process is equally important to the successful production of the product. The difference is that the customer is not usually present. The "moment of truth" concept developed by Normann (1984) and popularised by Carlzon (1987) encapsulates the intrinsic complexity of services by suggesting that every encounter between the customer and the service is an opportunity for success or failure.

While many models of service (and service quality, see chapter 3) have been developed from a marketing perspective, relatively few have been developed from an operations perspective. Possibly the first is that of Chase (1978) who identified the degree of customer contact as an important service dimension, while Schmenner (1986) described two dimensions of *degree of interaction* and *degree of labour intensity*. Schmenner included customisation with degree of interaction, while Haywood-Farmer (1988) considered these to be separate dimensions, producing the three dimensional model shown in figure 2.3

Palmer (1994) proposed the three dimensions of customer involvement (degree of interaction), variability from the norm (customisation) and variability of demand.

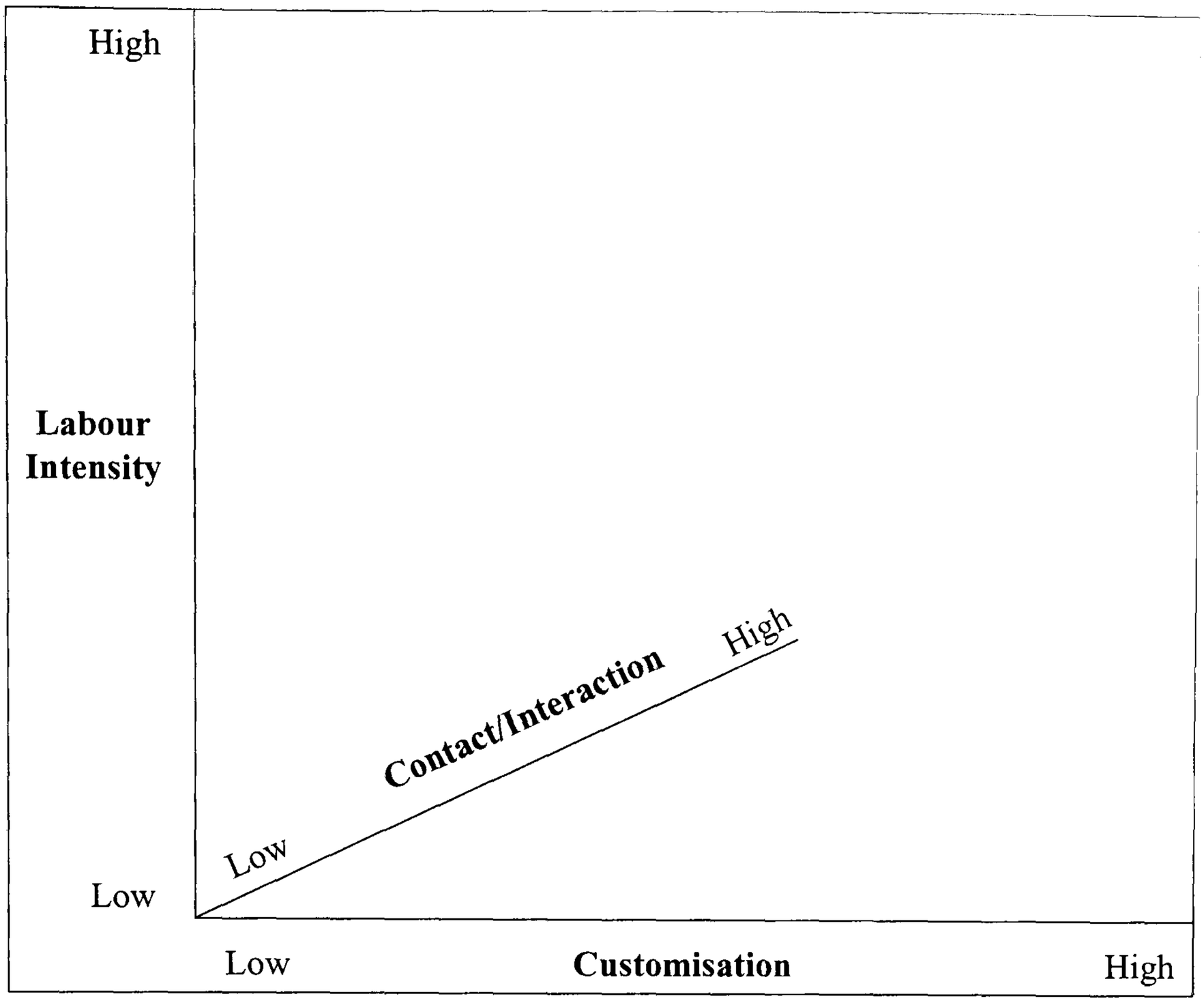

Figure 2.3 Three Dimensions of Service (after Haywood-Farmer)

Wemmerlöv (1990) suggests that degree of routinisation is an important dimension, along with the actual object of the service process, and the degree of customer contact.

Lovelock (1994) proposed a model of service using two dimensions of Tangible-Intangible and People-Possessions. The resulting four classes are shown in table 2.1.

	People	**Possessions**
Tangible	Directed at People's Bodies Health Care	Directed at Physical Possessions Retail Distribution
Intangible	Directed at People's Minds Education	Directed at Intangible Assets Banking

Table 2.1 Service Dimensions (adapted from Lovelock, 1994)

There is a marked overlap between these models, some obvious since the same terminology is used, others less so. Lovelock does not explicitly mention contact, but the division between people and possessions obviously encompasses the

interpersonal contact dimension. Equally Wemmerlöv's Routinisation has a strong resonance with customisation. Table 2.2 shows the association of these models.

Dimension	Chase	Schmenner	Haywood -Farmer	Palmer	Wemmer -löv	Lovelock
Contact	X	X	X	X	X	X
Labour Intensity		X	X	X		
Customisation		X	X	X		
Object					X	X
Routinisation					X	
Tangibility						X
Variability				X		

Table 2.2 Models of Service Dimensions

There is also some overlap with manufacturing operations, where the key dimension is frequently seen as customisation (or variety), and its inverse volume (see for example Galloway (1998), Slack et al, (1995)), while labour intensity has some correspondence with automation in manufacturing. This is not surprising given that both are operations. The important additional elements are Contact and Tangibility.

2.2 Service Operations

The intrinsic complexity of service has important implications for the management of the service operation.

The best-established model of operations is the systems based input/output model shown in figure 2.4.

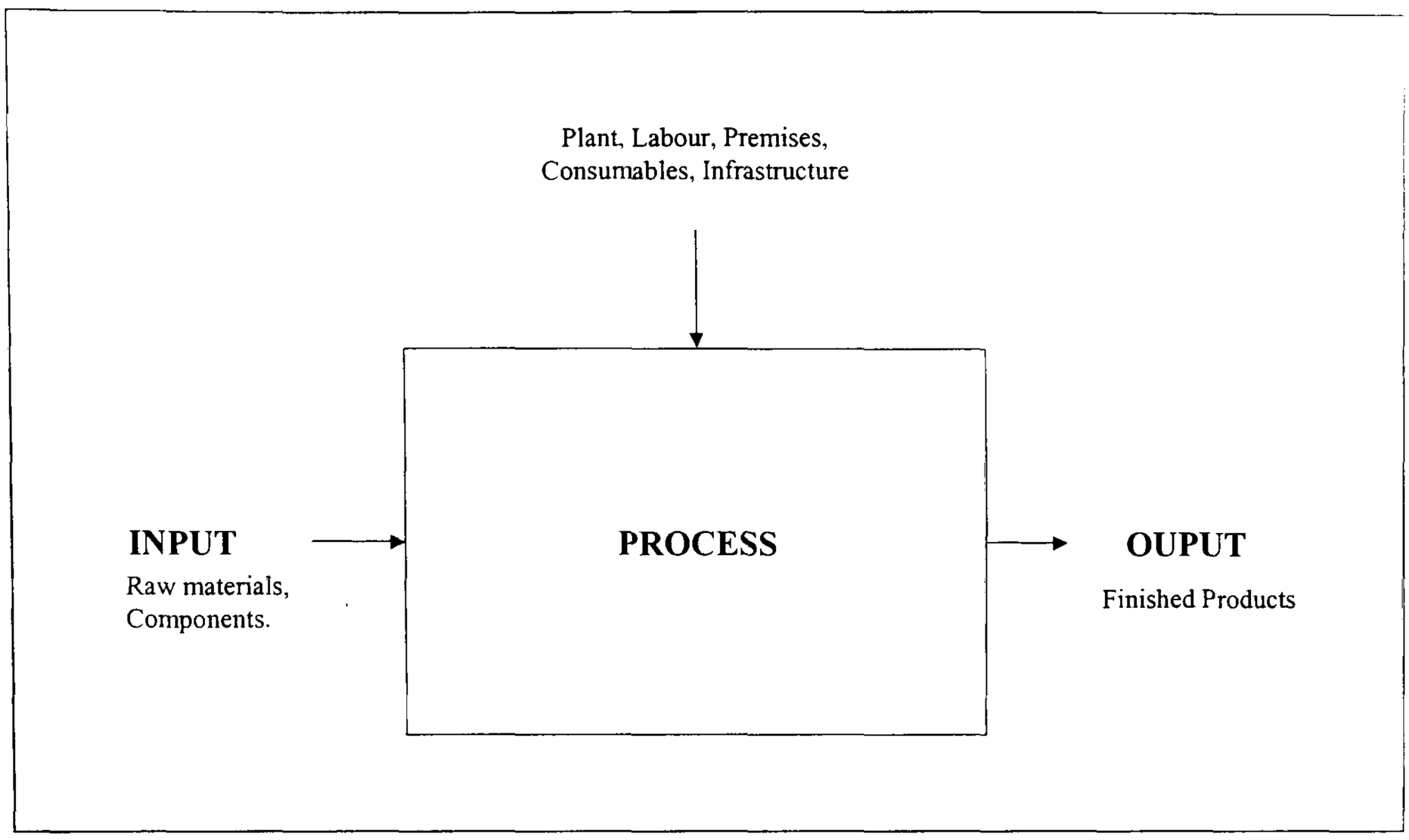

Figure 2.4 Input/Output Model of a Manufacturing Operation

In manufacturing, physical transformation of input materials is carried out by the operation to create an end product. Resources such as plant and labour are used to achieve this, but do not themselves become part of the product. It is axiomatic that this transformation adds value, and it is the aim of operations management to achieve maximum added value with maximum efficiency. The realities of the operating environment and the market usually temper this to achieving an acceptable balance between value and cost.

Globalisation, increased competition and developing technology have led to a model more resembling figure 2.5, at least for those organisations professing to be "World Class" (Galloway, 1996, 1).

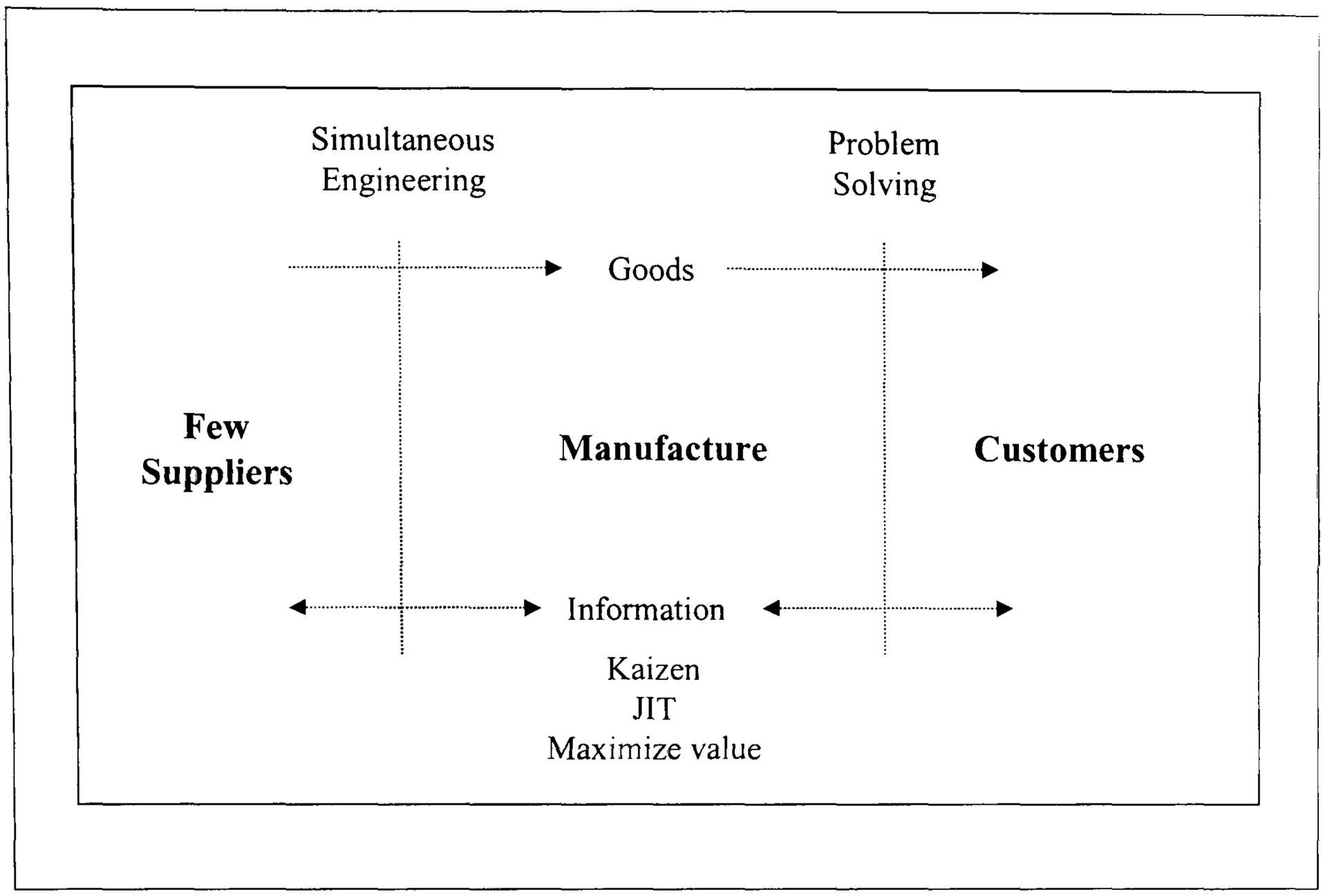

Figure 2.5 "World Class" Manufacturing Operations

The essential difference here is that boundaries become more permeable, less well defined, and the actual physical product becomes less significant in the overall supplier customer relationship. The objective is no longer to manufacture products efficiently, but to maximise customer value – the added value concept has expanded from the material to the user (Vandermerwe, 1993). Another way of putting this is simply to say that the product/service boundary has moved servicewards. The reality that goods are wanted because they perform services, expressed by Morris (1941) has now become a dominant feature in many markets.

Service operations is thus not only relevant to service industries, but also increasingly relevant to what have been considered manufacturing industries.

The transformation model still holds, but it has become more complex. The customer is being processed, and is often providing some of the labour and even plant and premises (e.g. Internet banking). While manufacturing operations are frequently both sequential and parallel, they are all essentially transformations of material. Service operations will typically contain elements of customer processing and processing of materials (and information) both in the presence of the customer and away from the customer. Consecutive processes will take place, but the variability of sequence is likely to be higher than in manufacturing. The

very nature of the transformation required is likely to vary from customer to customer. It is this level of complexity that figure 2.6 seeks to represent.

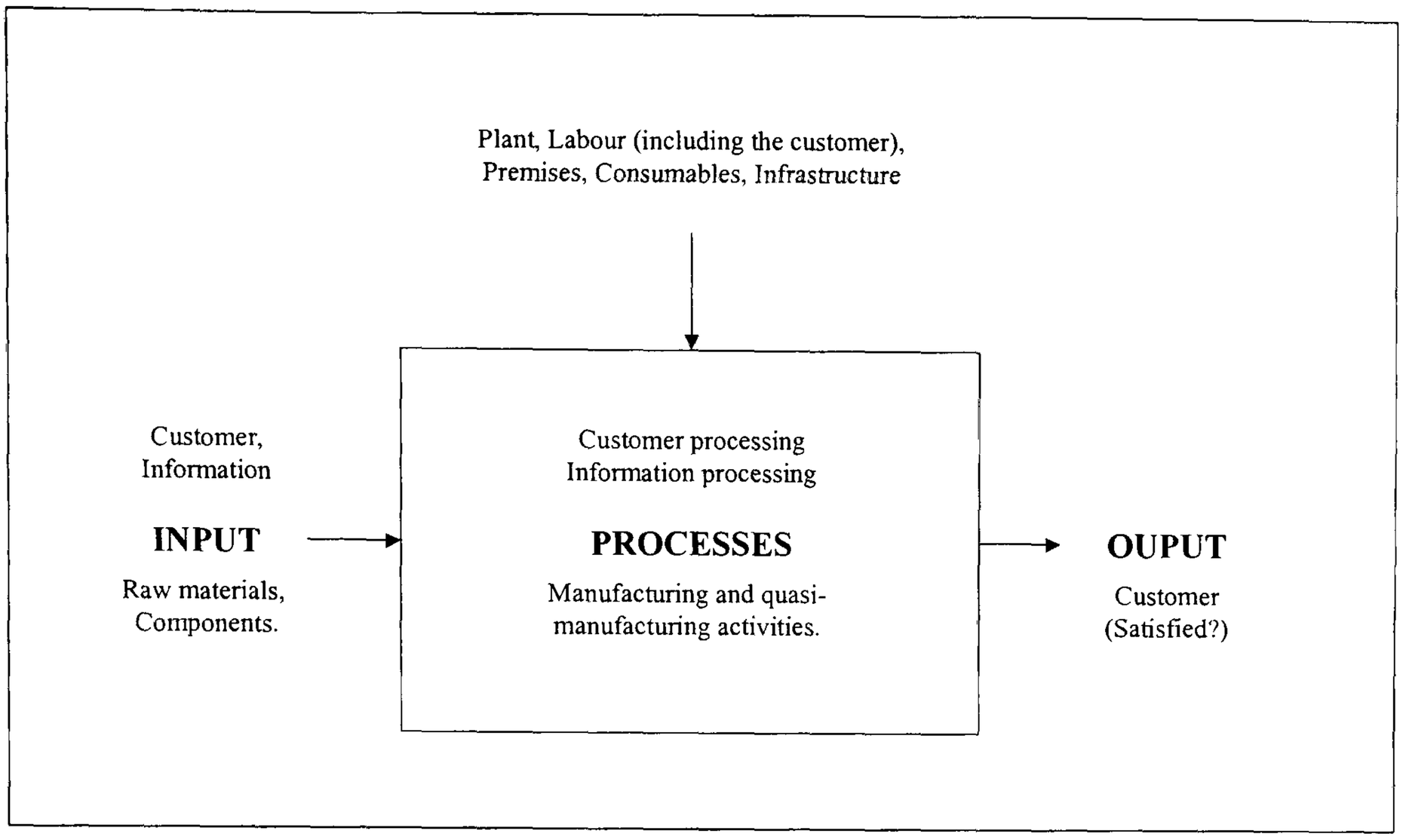

Figure 2.6 Input/Output Model of a Service Operation

Service operations management is thus concerned with the management of a complex portfolio of transformation processes involving customers, materials and information. This is carried out in an environment with high demand variability, inability to hold stock (the mainstay of much of manufacturing operations) and, as will be argued later, a high level of uncertainty about the precise characteristics of the service required.

Attempts have been made to simplify the situation, in particular through the back shop/front shop divide (see for example Galloway, (1998), Slack et al., (1995)). Here the essential customer contact elements are separated out from the rest of the service and become the front shop activities. All other activities are carried out away from the customer under conditions that are amenable to classic manufacturing control – the essential volatility of services, caused by the customer's presence has been removed so far as possible. This is illustrated in figure 2.7 with reference to retail banking, showing three levels of dissociation between the customer and the service provider (Galloway, Rowbotham and Azhashemi, (2000)). At present these services are complementary in that internet banking cannot really stand alone, and requires some support from the branch and ATM networks, but other developing services (e.g. direct downloading of music or written material from internet providers) do eliminate the physical front shop

completely. The benefits of maximising back shop content to operations are very obvious - resources can be scheduled to maximise productivity, stock can be held, inspection can be carried out. Other operational benefits also arise from this separation, for example:

> Location is no longer governed by the need to give physical access to the customer. The growth of call centres with their considerable economies of scale illustrates this trend.
>
> Stages in the process may be eliminated completely. In particular many retail outlets are being replaced in fields as various as Travel Services, Financial Services and Publishing. This is not simply a consolidation effect as in retail banking, but the complete elimination of the retailer.

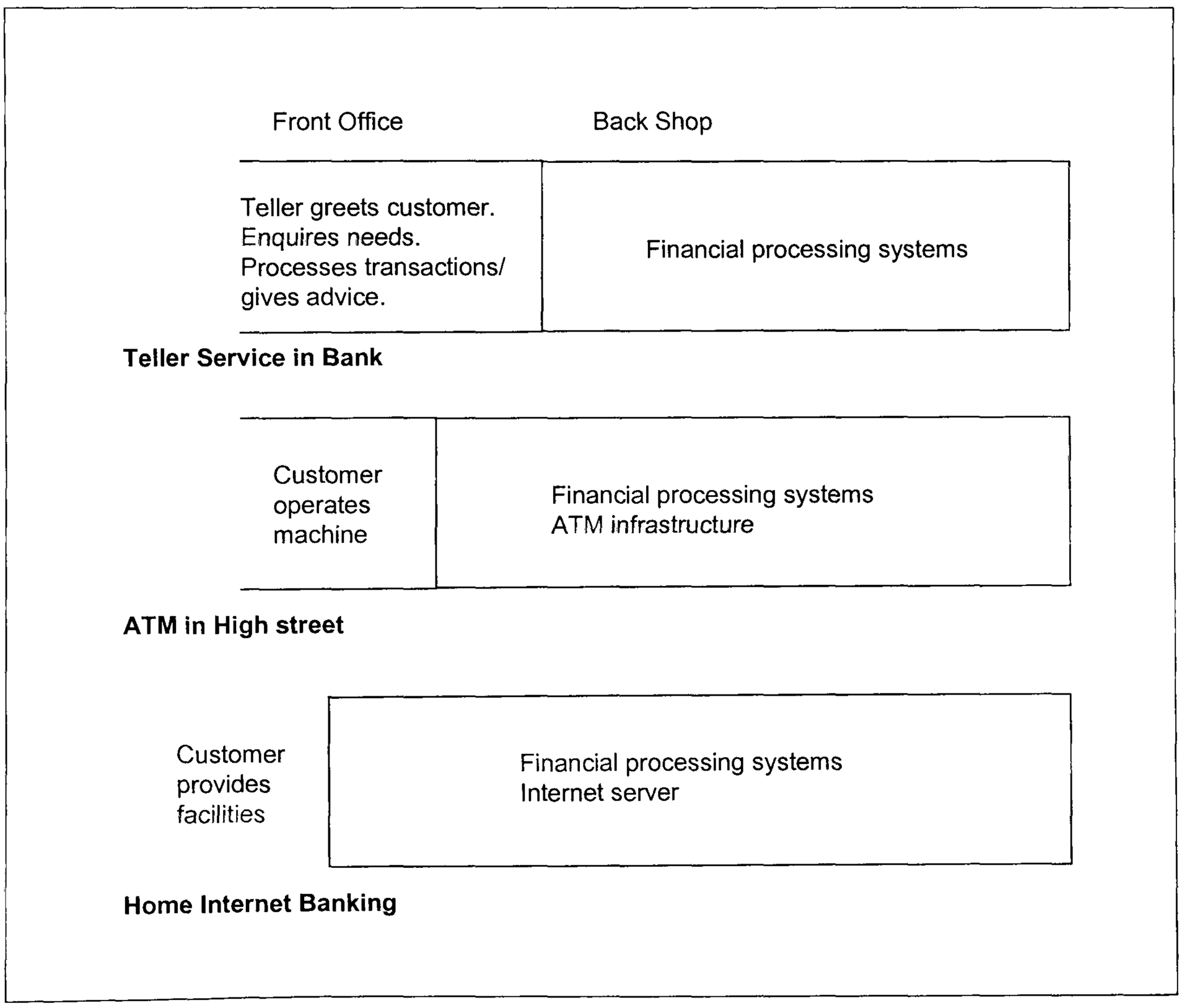

Figure 2.7 Front Shop/Back Shop Separation in Retail Banking

The message for operations appears to be that elimination of the customer from the process can only be beneficial in terms of increasing efficiency. Unfortunately

it is not always possible, and, as will be argued later, it can seriously damage the quality of the service.

2.2.1 Not For Profit Services

Most of the foregoing assumes that customers exist in the sense of clients who may choose to avail themselves of the service and pay for it. A substantial proportion of service activity arises in the field of state provision and not for profit services. These are characterised by three important distinctions:

The client is not usually the paymaster.

Competition is imperfect or non-existent.

There is generally a wide range of more or less identifiable and active stakeholders.

And occasionally:

Clients may not see themselves as beneficiaries.

The absence of competition is sometimes seen as a reason for low standards of performance, but it can be argued (Gaster, 1995) that there is a public service ethos which mitigates against this. Increasingly, quasi-competitive mechanisms are being set up with the intention of promoting both efficiency and effectiveness.

Primary/Secondary education is an example of a service showing all of these complexities. The direct client (the child) is certainly not a customer in any orthodox sense. Stakeholders who would claim a legitimate concern with the service include parents, local and national government, school governing bodies, OFSTED, employers, and higher and further education institutions. All could be considered customers. Government attempts to ensure high levels of efficiency and effectiveness, all more or less obvious surrogates for competition, include:

Tight fiscal control, intended perhaps to ensure efficiency, however, unlike the private sector, success does not usually increase profitability.

Published performance tables. A surrogate for customer satisfaction.

Parental choice. Coupled with the performance tables this is intended to give true competition. Parents will choose the "best" schools and the worst will be forced to improve or close. Unfortunately, the system does not have the capacity or responsiveness to make this a reality and for most, parental choice is a sham.

Stringent inspection, with compulsory remediation where required.

Increasing levels of prescription on process as well as outcome (It was announced by the DFEE on 1 March 2000 that a target of 25% good passes in 5 GCSE subjects would be imposed upon all secondary schools).

2.2.2 Relevance of Quality

Service is complex, multi-faceted and ubiquitous and the relevance of service quality could therefore be considered self-evident. Quality is a "good thing", an aim worth striving for.

In the real world, however, the bottom line is frequently the only immediate aim. It has been argued that there is increasing competitiveness in all business activities. In this climate, anything that gives competitive advantage through increasing attractiveness to the customer, or reducing cost, is desirable. Quality achieves both of these. Quality is usually an order winning criterion in most markets. Indeed, as the spread of standards such as ISO9000 shows, it has in many areas moved from an order winning criterion to an entry criterion. Not all markets demand high quality, but those which do not are likely to reduce, and will never offer rich rewards. Quality is also concerned with reducing waste and therefore reducing cost.

Quality is important in manufacturing, but given the changing relationship between manufacturers and customers, it is service quality that is becoming the basis for competition. Service quality is therefore important in all commercial activity.

In the non commercial sector, state, voluntary and charitable organisations, the competitive imperative is less obvious. Given that these organisations are usually

severely resource constrained, then waste is obviously undesirable and perhaps morally unacceptable, hence there is a functional imperative to high quality, but this is easily neglected. The higher profile of quality in the private sector would be expected to reduce consumer tolerance of poor quality in the public sector. In the UK this has led government to introduce quasi-competitive pressures in most public sector organisations and even in some private sector monopolies. In the public sector compulsory publication of performance data, charters, nationally set targets, all serve to stress the importance of quality. Regulation is imposed in many fields where competition is slight (utility suppliers) or where it is deemed that the public is unable to judge the complexities of the service (financial services) and this also serves to raise the profile of quality.

2.3 Conclusions

In conclusion it is argued that there a few fields of human endeavour which are free from the concept of service, or the pressure to maintain and improve quality. Where this pressure is not obviously derived from simple competition it tends to be imposed by regulation. Service, however is complex and multifaceted. There is some agreement about the dimensions of this complexity, which share with manufacturing concern for the variety/volume and automation/labour intensity dimensions, but introduce additional concerns for tangibility and customer contact.

In considering service operations, the traditional operations concern for efficiency has tended to seek to minimise the role of the customer permitting a higher degree of standardisation, scheduling and control. It is noteworthy that this industrialisation of services has been happening at the same time as the servicisation of manufacturing – service operations appears to lag behind manufacturing operations, but the inevitable outcome is a greater correspondence.

3. Quality

Quality is a concept that is more often discussed than understood. It is generally considered to be complex, in that its meaning varies with context. Even when the context is defined and there is some agreement on what is being considered, quality is usually found to be multi-faceted.

An example of this complexity is given by Tamimi and Sebastianelli (1996) in a survey of 86 firms of various types and sizes. In all, 27 different definitions were produced.

Service quality is widely accepted as a key factor in achieving competitive advantage in most service industries. The main UK banks have all at one time or another claimed that quality would be their distinctive competence, and even exhaust and tyre suppliers (Quikfit) are claiming that their aim is "100% customer delight". Notwithstanding this, industry is being relatively slow to actually improve. Consecutive Which? reports on customer satisfaction with retail banking show little or no improvement (Consumers Association, 2000), and a recent report headlined "We love our customers say Britain's managers - but only recently" (Professional Manager, 1995, p27).

In part this is due to the elusive nature of quality. Quality in general and service quality in particular is accepted as being complex and multidimensional. As Garvin (1988) writes:

> "Quality is an unusually slippery concept, easy to visualise yet exasperatingly difficult to define", (p ix)

This causes difficulty for organisations seeking to improve, or even just control, service quality, since control must depend upon reliable measurement. As Boaden and Dale (1993) observed in investigating quality improvement in a UK Clearing Bank,

> "A lack of such a definition (of quality service) within the bank … hampered the progress of some improvement projects since it was not clear whether service had improved as a result." (p37)

Efficient, as opposed to accidental, improvement depends upon a realistic and effective measurement process, which in its turn depends upon an unambiguous definition of service quality.

3.1 Quality Defined

One of the earliest attempts to understand this complexity was that of Garvin (1984) who, in a paper discussing Product Quality analysed the range of quality definitions and classified quality into five categories namely:

> *Transcendental*: innate excellence, absolute and universally recognisable but undefinable;
>
> *Product-based*: dependent on measurable attributes of the product. These usually take the form of more (or less) is better (e.g. a slimmer notebook PC is better all other things being equal), but may also assume an ideal point (±1% is better than ±5%);
>
> *User-based*: "quality is in the eyes of the beholder", often reduced to the set of characteristics which produce the maximum satisfaction in the maximum number of users. In discussing this Garvin raises many of the problems which subsequently beset discussion of service quality.
>
> *Manufacturing-based*: conformance to requirements or specification.
>
> *Value-based*: value for money.

This has also proved to be one of the most influential classifications, with most subsequent authors acknowledging or even simply accepting his classification.

Hardy and Walsh (1994), in a comprehensive survey, produced a representative selection of ten definitions.

> Quality is product performance which results in customer satisfaction freedom from product deficiencies, which avoids customer dissatisfaction – Juran (1985, p 5.)
>
> Quality…is the extent to which the customer or users believe the product or service surpasses their needs and expectations – Gitlow *et a*l (1989)
>
> Quality: the totality of features and characteristics of a product that bear on its ability to satisfy stated or implied needs – International Standards Organisation (ISO, 1986)
>
> Good quality…means a predictable degree of uniformity and dependability at a low cost with a quality suited to the market – Deming (1986, p176)
>
> (Quality is) the total composite product and service characteristics of marketing, engineering, manufacture and maintenance through which the product in use will meet the expectations of the customer – Feigenbaum (1986)
>
> Quality is anything which can be improved – Imai (1986, p xxiii)
>
> Quality is the loss a product causes to society after being shipped – Taguchi (1986, p 1)
>
> We must define quality as "conformance to requirement" – Crosby (1979, p 17)
>
> [Quality is] the degree or grade of excellence etc. possessed by a thing – *Shorter Oxford English Dictionar*y (1975, p 1724)
>
> Definition of quality…a thing is said to have the positive attribute of conformance to specified standards – Shewhart (1931, pp. 47-9, p. 262)

Hardy and Walsh go on to argue that all of these definitions (and those of Garvin) are in some way measures of difference between an actual state and a desired state – the disconfirmation paradigm described below under service quality.

Reeves and Bednar (1994) in an exhaustive survey, concluded that there were four widely used types of definitions of quality namely:

Excellence

Value

Conformance to Specifications

Meeting or Exceeding Expectations

They, like Garvin, concluded that these definitions must co-exist, and possess varying relevance in varying circumstances. "The quality construct is so broad and includes so many components that there would be little utility in any model that tried to encompass them all" (p441)

The author has identified six more or less exclusive definitions of quality onto which these various definitions map as shown in Table 3.1 (Galloway, 1996, 2):

Transcendent. Quality as innate excellence, a property possessed by an object, and recognised rather than identified or measured.

Meeting Customer Requirements. The product or service meets the requirements of the customer. This is a design focused definition that presumes that customer requirements can be clearly identified and specified. Sometimes expressed as Fitness for Purpose.

Conformance to Specification. The product or service received by the customer meets specification. This is an operations centred approach that presumes that the specification is correct.

Free from Errors. When applied to the delivered product/service this is equivalent to Conformance to Specification, but when applied to the operations process, it becomes a waste reduction issue. Should "right first time" be the aim, or should inspection be used to prevent defects reaching the customer?

Value for Money. Quality is relative to price. A utility model approach that argues that "good" quality is proportional to the net utility received by the buyer.

Exceeding Customer Requirements (or Expectations). The "delight" school of thought which suggests that every service experience must be better than the last to justify the label "high quality". This is *ultimately* self-defeating, and *eventually* takes quality out of the competitive arena by making it a qualifying criterion

Transcendent	Garvin 1, Dictionary, R&B 1
Meeting Customer Requirements	Garvin 2 & 3, Juran, ISO, Feigenbaum, Crosby, Taguchi, R&B 4
Conformance to Specification	Garvin 4, Juran, Deming, Crosby, Shewhart, R&B 3
Free from Errors	Garvin 4, Deming, Imai, Taguchi
Value for Money	Garvin 5, Deming, Imai, R&B 2
Exceeding Customer Requirements	Garvin 2 & 3, Gitlow, Imai, R&B 4

Table 3.1 Classification of Quality Definitions

The classification of the definitions of Taguchi and Imai are perhaps arguable, but they are so broad as to mean almost anything. In the case of Taguchi, the view has been taken that loss to society occurs mainly through errors and through failure to meet customer requirements, while with Imai, the main areas for improvement would seem to be customer delight, freedom from errors and value for money. Garvin's second, product based, definition is also a slightly uneasy fit and it has

been assumed that the specification is only relevant if it relates to customer requirements.

While there are certainly overlaps between these six definitions, they are not particularly congruent; hence the confusion that arises when quality is discussed.

It is suggested that, in manufacturing operations, these different forms of quality have been recognised, if not always clearly articulated. The nature of the quality being discussed is apparent to informed participants from the context of the discussion: for example, at the contract negotiation stage discussion is more likely to be about requirements, while during supply conformance is more likely to be the issue. The majority of quality development over the past 75 years has taken place in manufacturing, from statistical quality control in the 1920s through statistical process control and on to the Total Quality movement of the 1980s. It is only the recent concern for service "operations" that has brought service quality into play as a discrete topic. With both customers and service providers the long established context of manufacturing quality is absent, hence the much greater difficulty in defining quality in a service context. The increasing servicisation of manufacturing (see for example Vandermerwe, 1993) has brought similar problems into the manufacturing arena. It is noteworthy that seven of the definitions identified above relate to "Meeting Customer Requirements" and a further two to "Exceeding Customer Requirements", but that these are also among the most recent, indeed Juran (1951) was one of the first to consider the customer in defining quality as "fitness for use".

A key difference between manufacturing quality and service quality lies with the skill of the purchaser. In industrial marketing, the purchaser is usually a skilled buyer, and this skill is usually present throughout the supply chain right up to the final retail customer. Even here the customer probably has a good idea about the specification of the product as it applies to his/her needs, i.e. has a clear idea of quality. The service purchaser is faced with a far greater range of parameters upon which to judge the quality of the service, and many of these will be far less tangible than product characteristics. Service purchasers are also less skilled and informed - product advertising tends to inform about product characteristics/specification/performance rather more than service advertising;

Products may be viewed and demonstrated, while services usually cannot be tested without purchase. Even in the industrial field, the growing trend towards servicisation and co-operation is bypassing the skilled buyer, and leading to direct interaction between user and supplier. Again customer skill is reduced.

Agreed specifications for service quality are thus rare, and because of the intangibility, subjectivity and lack of skill of the buyer, unlikely to work even when they exist. De facto, the ultimate judge of quality is the customer. If the service is not acceptable to the customer then custom may be taken elsewhere. Even in the public sector, where genuine alternatives may not exist, the quality consciousness generated by government, and the increasing willingness of consumers to articulate discontent to a wide range of eager listeners, means that dissatisfied customers generate costs just as significant as disaffection in the private sector.

3.1.1 The Operations Perspective

Even the six definitions given above (table 3.1) are excessive from an Operations viewpoint. The operations function is charged with delivering the product and/or service, and is ultimately responsible for achieving appropriate quality. The achievement of quality, however, requires that it be measured which in turn requires definition.

Classic control theory, originally developed by Claude Shannon (Shannon & Weaver, 1949) and developed extensively within the Systems movement (see for example Bekey (1976), Checkland and Scholes (1990)) requires that the loop be closed as shown in figure 3.1 and this requires defined and measurable standards, and compatible and influenceable measures. In other words;

- the process must have a defined and measurable output
- this output must be measured in terms that are compatible with a defined performance standard
- some process of comparing the measure with the performance standard must exist

- this process must drive action which can directly or indirectly (but predictably) affect the performance measure.

Emmanuel et al ((1990) quoted in Rotch (1993)) expressed much the same ideas when they identified four necessary conditions as defined objectives, output measurable in terms of the objectives, identification of the causes of non-attainment and corrective action, and a capability to take action.

If all elements of the loop are not present then neither control nor improvement is possible.

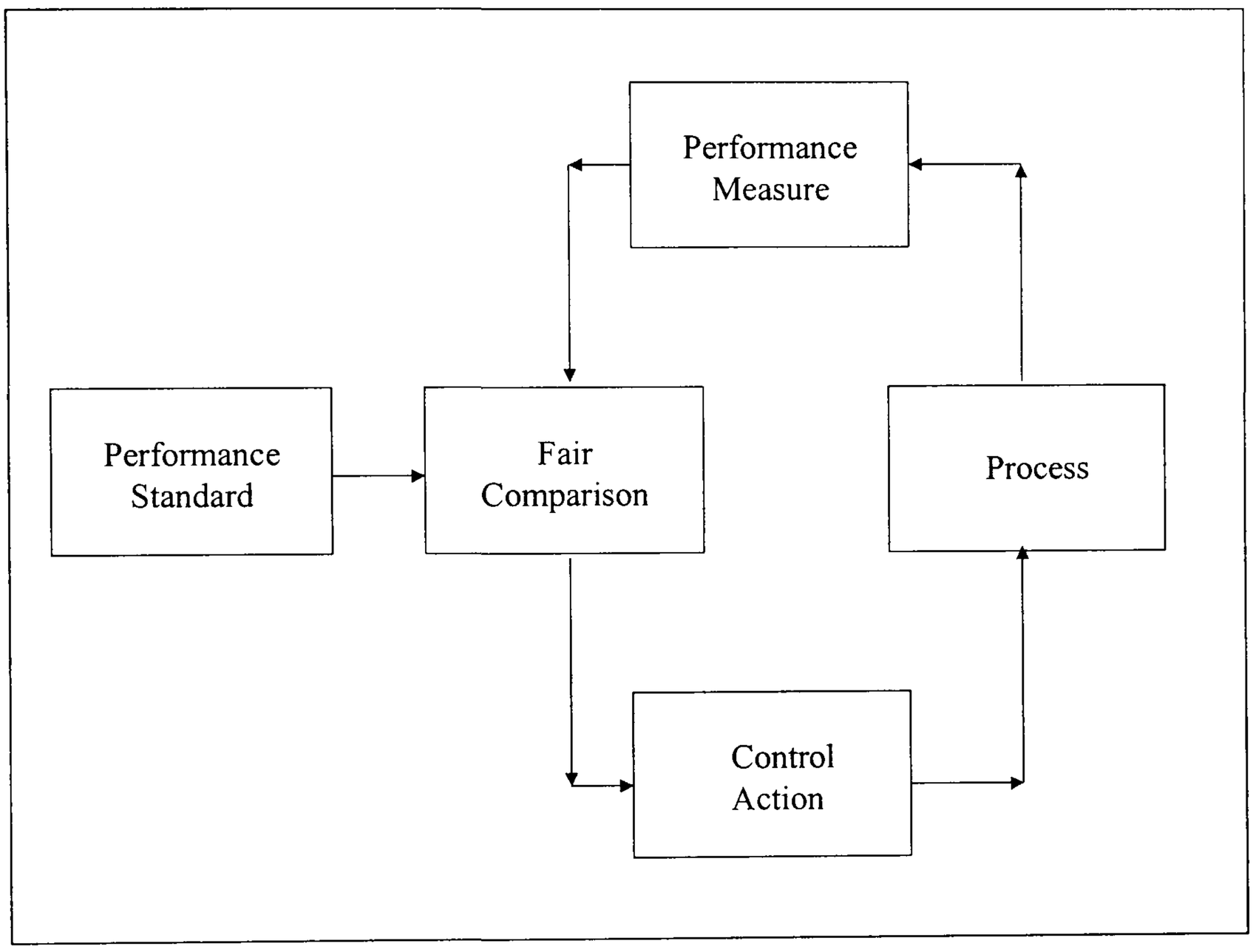

Figure 3.1 Simple Control Loop

To be useful to operations, therefore, a definition of quality must satisfy the following criteria:

Lead to definable standards.

Permit compatible performance measurement

Permit influenceable performance measures.

Applying these to the six definitions we find:

Transcendental definitions of quality, based as they are upon some implicit but undefinable absolute, clearly fail to satisfy any of these criteria. While they may well have value in aesthetics and even in Marketing, without definition they are of little relevance to operations.

Meeting Customer Requirements can only be useful to operations if the requirements are defined i.e. a specification which leads to measurable and influenceable performance is necessary.

Conformance to Specification is the classic operations definition of quality. The specification is the standard.

Free from Errors is also an operations issue, provided that the nature of errors is defined in terms of the specification.

Value for money definitions have a peripheral relevance. Operations is concerned with cost whereas value for money relates to price. Since operations does not necessarily have an influence on pricing decisions, this quality measure is not necessarily influenceable by operations.

Exceeding Customer Requirements is, from an operations perspective, no different from Meeting Customer Requirements. Definition of the excess is necessary if control is to be exercised.

Taking these into account, a set of three definitions of relevance to operations is arrived at (Galloway, 1995).

Design Quality. This represents the degree to which the design of the product or service meets the requirements of the market. Satisfactory design quality requires a clear understanding of the requirements of the customer, and a product or service specification which matches this. The design should also reflect the customer's willingness to pay and thus embodies Value for Money. Design quality is not specifically an issue for operations, since the task of operations is to deliver to specification, however, design needs to produce a specification which is both complete and feasible enough for operations to deliver. If the specification does not meet market needs, the problem rests with design.

Conformance Quality. This represents the degree to which the product or service delivered to the customer matches the specification. This is clearly an operations issue since operations is responsible for producing to specification, however, 100% success may be an unrealistic expectation. While failure here may initially be set at the door of operations, it could still be due to the specification being incomplete or unfeasible.

Operations Quality. Delivery to specification can be achieved either by getting things right first time, or by inspecting out defects. The quality of the operations process will be reflected in the number of defects produced, but inspection can still ensure that conformance quality is satisfactory. Defects and inspection have an adverse effect upon costs, but it may still be more cost effective to use an inferior process followed by inspection than to invest in a process capable of perfection. Again Value for Money is relevant to this definition.

The mapping of these definitions onto those previously discussed is shown in table 3.2

Design Quality Conformance Quality Operations Quality	Transcendent	Garvin 1, Dictionary, R&B 1
	Meeting Customer Requirements	Garvin 2 & 3, Juran, ISO, Feigenbaum, Crosby, Taguchi, R&B 4
	Exceeding Customer Requirements	Garvin 2 & 3, Gitlow, Imai, R&B 4
	Conformance to Specification	Garvin 4, Juran, Deming, Crosby, Shewhart, R&B 3
	Value for Money	Garvin 5, Deming, Imai, R&B 2
	Free from Errors	Garvin 4, Deming, Imai, Taguchi

Table 3.2. Quality Definitions

It should be noted that the distinction between these three qualities is very real in manufacturing, but rather less clear in services. The ultimate judge of quality in services is always the customer - a dissatisfied customer has had a poor quality service regardless of the cause - and the customer is not particularly interested in whether the service was poorly specified or poorly delivered. Service specifications are frequently vague compared with product specifications so it might be difficult for a service provider to convincingly argue that the service met specification. A further problem arises because of the presence of the customer during service delivery confuses Conformance quality and Operations quality. Unlike manufacturing, failures cannot necessarily be inspected out.

Definitions of Service quality extend the complexity still further. The customer involvement entails that the paramount definitions should be arrived at from a customer perspective. The dissatisfied customer has had a poor quality service experience regardless of specification, conformance, or excellence. The net result

of this is that the majority of work on service quality has been carried out from a customer perspective.

The investigation of service quality is relatively recent, with little work of note being carried out before the mid 1970s. That work carried out since has concentrated either on cost reduction through error elimination (for example, the case of the TQM implementation at Girobank described by Memmott (1991)), or on customer perceptions.

Service quality, from a customer viewpoint, is almost always perceived as possessing attitude-like properties (Bitner and Hubbert, 1994), and is therefore to be measured using attitude measurement techniques.

Oliver (1980) describes the disconfirmation paradigm of service quality which the majority of researchers have since adopted (see, for example, Johnston and Heineke (1996)). The customer enters the service encounter with a measure of quality and certain expectations. The disconfirmation of these expectations by the service encounter leads to a revision of the quality measure:

$$q_i = f(q_{(i-1)}, p_i - e_i)$$

where q_i is the new quality measure, $q_{(i-1)}$ the previous quality measure and e_i and p_i the expectation and perception respectively. This simple model has not been convincingly demonstrated mathematically, although it is widely accepted (for example, Parasuraman et al (1985), Johnston (1995)). The implications for Operations are substantial since quality is now defined as being attitude-like and dependent upon the interaction between a (possibly ill-structured and ill-informed) pre-conception and a (equally ill-structured and ill-informed) perception of an experience.

The problems are substantial. Not only does measurement of quality, perception and expectation require a model which reduces the actual questions asked of customers to a manageable quantitative framework, but it is likely that the relationships are non-linear, and possibly not even continuous. For example;

> customers are frequently willing to overlook the occasional disappointment when a service is generally perceived as good - a negative p-e does not have a negative effect upon q.

saturation effects lead to situations where further improvements in service do not lead to further improvements in quality perception, i.e. how smart can your staff really get?.

non linear effects are particularly difficult to model, especially when the direction of the effect changes, i.e. too slow a service is usually an indicator of poor quality, but too fast a service, in the same situation, can lead to dissatisfaction through feeling rushed.

distinguishing between order winning, and market entry criteria is difficult. Aspects of service which represent market entry criteria, are discontinuous - a minimum level is required, but thereafter they are irrelevant. Order winning criteria can be expected to show a mathematical correlation with quality, but linearity may not be present.

Attitude like measures of customer perceptions do in reality measure something more akin to satisfaction than to quality. Even the nature of the causal relationship, if any, between customer satisfaction and perceived quality is disputed (Cronin and Taylor, (1992)) with customer satisfaction being seen as a function of perceived quality (Anderson and Sullivan, (1993)) or perceived quality being a function of customer satisfaction (Parasuraman et al., (1988)).

In summary, quality in manufacturing has been reasonably well understood if not always clearly articulated. It can be defined with little ambiguity, although not without multiple definitions. The definitions lend themselves to different aspects of the process of producing and supplying goods. In the service sector, and this increasingly also means manufacturing, it is users who are the arbiters of quality, but they are more disparate, less skilled, and more subjective in their criteria. Quality and satisfaction are closely linked, though the nature of the linkage is disputed, and the most widely used definition of quality depends upon the

difference between two more or less vague customer attitudes. Despite, or perhaps because of, this, effective quality management still requires clarity and definition.

3.2 The Dimensions of Quality

Even in manufacturing, with a clear specification, quality is multidimensional. Numerous attempts have been made to identify and define these dimensions, mainly with a view to facilitating management and improvement. For example, Garvin (1984), still considering product quality, proposed the following eight dimensions:

(1) *Performanc*e. the primary operating characteristics of a product.

(2) *Feature*s. Those characteristics that supplement the basic performance functions.

(3) *Reliabilit*y. The probability of a product working fault-free within a specified time period

(4) *Conformanc*e. the extent to which a product meets standards/specifications.

(5) *Durabilit*y. A measure of a product life.

(6) *Serviceabilit*y. The extent to which, and ease with which, a product may be maintained.

(7) *Aesthetic*s. General attractiveness of appearance.

(8) *Perceived quality*. These represent the subjective, customer centred, elements.

Like his definitions of quality, these are still widely quoted and used (see for example, Evans and Lindsay (1999) (p12)).

Dimensions 1, 2 and 6 are clearly elements of design quality, while 4 is simply conformance quality. Dimensions 3 and 5 are influenced by both design and conformance quality. Since Garvin is here only considering the product not the process, operations quality is not represented. Dimensions 7 and 8 also belong to

both design and conformance quality, but differ from the others in the problems of definition and measurement.

Seawright and Young (1996), taking Garvin's definitions as a starting point, proposed a two dimensional model of quality, using the dimensions Internal - External and Subjective – Objective. This is shown in figure 3.2.

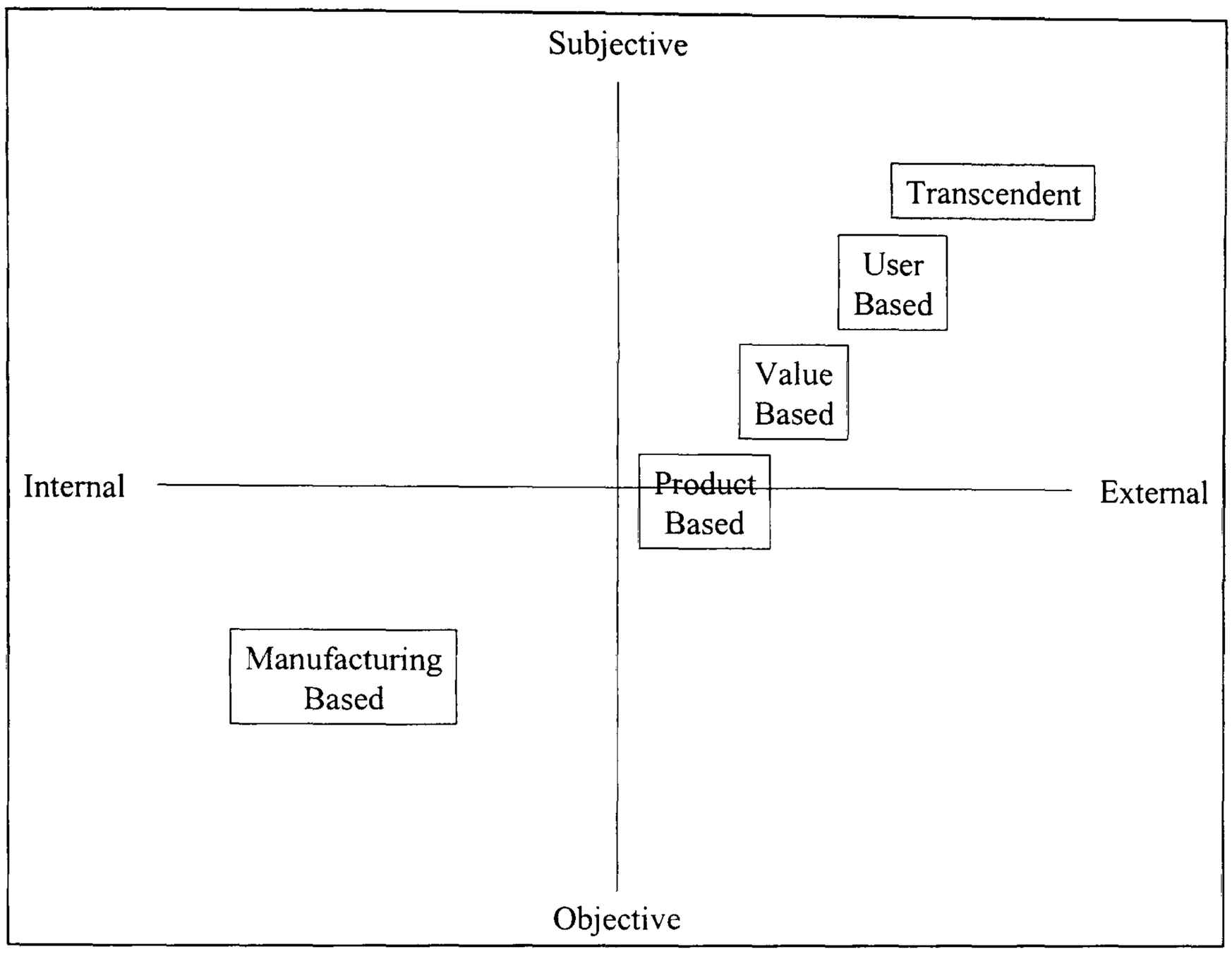

Figure 3.2. Dimensions of quality (adapted from Seawright and Young)

Seawright and Young (p113) concluded that

> "The various areas of quality form a continuum that connects all definitions of quality… Firms can use this continuum to help their members understand the relationships among quality definitions."

The problem becomes more complex when the specific nature of service quality is considered. Taking for example Garvin's dimensions, the customer centred definition of service quality effectively subsumes dimensions 1 to 7 under dimension 8. Dimension 8 is already implicitly multi-dimensional ("subjective, customer centred, elements").

The range of dimensional models in the services marketing literature is extensive, ranging from 2 to in excess of 20 dimensions. Among the earliest, the Nordic school argued for three underlying dimensions. Grönroos (1988) identifies these as Technical, Image and Functional, while Lehtinen and Lehtinen (1985) (quoted

by le Blanc and Nguyen (1988)) identify Physical, Corporate and Interactive. The components of these dimensions are tabulated in table 3.3

Grönroos		**Lehtinen and Lehtinen**	
Technical	Professionalism and Skills	Physical	Equipment Premises Tangibles
Image	Reputation and Credibility	Corporate	Image Profile
Functional	Behaviour and Attitudes Accessibility and Flexibility Reliability and Trustworthiness	Interactive	Contact with service personnel Contact with other customers

Table 3.3. The Nordic School dimensions

In many respects, the differences between these are more of emphasis and viewpoint than of substance. Certainly Grönroos' "Image" and Lehtinen and Lehtinen's "Corporate" are identical, while the Interactive and Functional dimensions differ mainly in that Grönroos describes the elements while Lehtinen and Lehtinen describe the situation. The physical elements are only indirectly represented within Grönroos' Technical dimension.

There is an apparent polarity between these models of service quality dimensions and the more general product quality analysis of Garvin. Where Garvin relegates the customer perception aspects of quality to a single dimension, the Nordic school seems to do much the same with the actual service product, which is perhaps implicit in some of Grönroos' dimensions but which Lehtinen and Lehtinen do not mention.

Possibly the most influential model of service quality dimensions is SERVQUAL, developed by Parasuraman et al. (1985 and 1988). It is an established framework to quantitatively measure general service quality.

SERVQUAL proposes that service quality is composed of five dimensions as shown in table 3.4.

Tangibles	Appearance of physical facilities, equipment, personnel and communication materials
Reliability	Ability to perform the promised service dependably and accurately
Responsiveness	Willingness to help customers and provide prompt service
Assurance	Knowledge and courtesy of employees and their ability to convey trust and confidence
Empathy	Caring, individualised attention the firm provides its customers

Table 3.4 The SERVQUAL Dimensions

It also proposes that performance on each dimension can be measured using the SERVQUAL questionnaire. This is a questionnaire built up from 22 questions, each question addressing one of the dimensions. There are two sets of questions, the first addresses expectations, and the second perceptions of the particular element, thus the instrument can be used to directly measure the gap between expectation and perception. The instrument gives a direct measure of disconfirmation. In addition, the relative importance of the five dimensions is determined by asking the respondent to share a score of 100 between them.

SERVQUAL has been widely used, but also widely criticised. The main criticisms have related to the generality, or otherwise, of the questions, cultural bias, and complexity. For example, Galloway and Wearn (1998) in using SERVQUAL with undergraduate students found it necessary to rephrase some questions to avoid flippant responses. For example:

20 Excellent _____ companies will have employees who give customers personal attention

was felt to be provocative in this context. Questionnaire fatigue was also witnessed, with respondents quite obviously answering the second half of the second set of questions without real consideration. The requirement to share 100 points between the five dimensions is also seen as intellectually challenging, with Beach and Burn (1995) reporting that respondents preferred a simple ranking.

Several authors have questioned the whole basis of the perception-expectation gap approach of SERVQUAL (Babakus and Boller, (1992); Cronin and Taylor, (1992)) with Cronin and Taylor finding that simple perception scores were better predictors of overall perceived quality than the perception-expectation gap and basing their SERVPERF model upon this.

Mels, Boshoff and Nel (1997), in a major appraisal of SERVQUAL based upon five different data sets covering five different service industries, concluded that there was little or no evidence for the five claimed dimensions, and that the best fit for their data was obtained with a two dimensional model which differentiated between the SERVQUAL Tangibles dimension, which they refer to as Extrinsic Quality, and the rest, which they call Intrinsic Quality. They suggest that these two dimensions bear far more resemblance to the earlier Nordic school model, with Extrinsic quality being very similar to Technical and Physical quality. This association is shown in table 3.5.

Mels et al	**SERVQUAL**	**Grönroos**	**Lehtinen and Lehtinen**
Extrinsic	Tangibles	Technical	Physical
		Image	Corporate
Intrinsic	Reliability	Functional	Interactive
	Responsiveness		
	Assurance		
	Empathy		

Table 3.5. Service quality dimensions

This lack of agreement on the dimensionality of service quality has important implications for control and improvement. As has been argued, these depend upon appropriate measurement, measurement which is relevant and influenceable. The only model which has a clear underpinning of measurement is SERVQUAL. Others (for example SERVPERF) are clearly derived from this, and while questioning the dimensionality still use the instrument based upon it.

From an operations perspective, these models would create problems even if they were accepted as universally valid. Perceived quality is both an indirect and a post hoc measure. The mechanisms of influence are not obvious;

> "The 'dimension' is not focused on specific issues which either the customer or the service designer are likely to address." (Blanchard and Galloway, 1994, p 12)

Asking an operations manager to improve 'empathy' for example, without a very clear specification of which aspects of the service had what sort of effect upon 'empathy', would be unlikely to lead to any useful activity. As Lawler and Rhode (1976) in their seminal work *Information and Control in Organisations* say

> "Knowledge of how information and control systems affect behaviour is …important… Their whole purpose is to……influence behaviour so as to make it more effective" (p xiii)

Notwithstanding the ultimate importance of perceived quality, it fails to satisfy the requirements for a directly applicable control and improvement system.

3.3 Conclusions

In summary, quality in general, and service quality in particular, are accepted as being complex and multi-dimensional. Manufacturing views of quality tend to relegate the service issue to one or two ill-defined dimensions, whereas service views tend to concentrate on the customer viewpoint almost to the exclusion of the service itself. While Garvin's analysis of quality dimensions from a manufacturing viewpoint is widely accepted it fails to satisfy the requirements of service quality. There is, however, little agreement on the actual dimensionality of service quality. The focus of much of the literature is upon the five dimensions of SERVQUAL. Many studies simply accept SERVQUAL, although few have managed to reproduce the five dimensions and even its developers seem to have accepted that there may really only be three dimensions (Parasuraman et al, 1994). Even if there was agreement upon the dimensionality of service quality, the nature of the dimensions proposed is such as to make them less than useful from a control and improvement perspective. The complexity of quality in general and service quality in particular has been demonstrated, but the dimensionality of

(perceived) service quality is unclear from the literature. The most reasonable interpretation is that it is simply not constant, varying from service to service.

In chapter 4, the issues raised in chapters 2 and 3 will be developed into a model of service quality which satisfies the requirements of operations without losing sight of the importance of the customer. The remainder of the thesis then seeks to demonstrate the validity and utility of this model.

4. An Operations Centred Model

In the previous two chapters it has been argued that Service and Quality are both independently complex and multi-dimensional. The focus of this research is on the interface between the two and is therefore doubly complex. Against this, Operations Management has a relatively simple brief - to manage the transformation process which delivers the service to the specified quality. To achieve this, the specified quality needs to be defined in ways that are meaningful to Operations, and are measurable. The complexity needs to be simplified in a manner that is useful to operations without losing contact with the needs of the market.

Such a model will be described in this chapter. It arose in part out of the inadequacies of the models derived from a marketing perspective described in chapter 3 and in part out of the preliminary data described in chapter 6.

4.1 The Needs of Operations.

> "The operations function is the arrangement of resources which is devoted to the production of its goods and services." (Slack et al., 1995, p7)

It is thus concerned with the provision of appropriate resources, in terms of volume, mix, capabilities, location and time. Resources are plant, materials, facilities (hardware), staff and sometimes even customers. An essential ingredient in ensuring appropriateness is the management infrastructure – the planning, scheduling and control system – Rust and Oliver's (1994) internal service environment.

As was said in chapter 2, Service Operations Management is concerned with the management of a complex portfolio of transformation processes involving customers, materials and information. It also involves front and back office resources including staff, premises and equipment and the procedures within which these operate. For a model of service and especially service quality, to be useful *it should* reflect these issues and facilitate decisions on appropriate

definition and disposition of resources. *In particular it should* demonstrate some relevance to the following classic operations decisions (Galloway, 1998).

Process Choice. Reflecting the degree of flexibility required of the process. While most mass services are in essence job/project activities, i.e. each customer's requirement is dealt with individually, the reality is that a very high degree of standardisation takes place.

Location. Reflecting the relationship between the service and the customer and also the need for face-to-face interaction. It should, however, be noted that the development of technology (particularly in communications) and changing customer expectations means that the service delivery location is increasingly provided by the customer.

Automation and Labour. Reflecting the degree to which staff are required or used in the service delivery, both as customer contact and in back shop activities.

Planning and Control. The *systems should be matched to* the type of process, the level of technology, the capabilities of the staff and the expectations of the customer

Front Shop/Back Shop. Reflecting the extent to which industrialisation is appropriate and possible.

These are not independent. The front shop/back shop decision has a strong influence upon all others, dictating as it does process choice, labour function and often location. Process choice should be appropriately matched with planning and control systems if the operation is to function effectively. Most particularly the use of labour interacts strongly with planning and control and with process choice. Of particular concern is the skill required of the labour force, not only does this have implications for the efficiency of the operation, but it has long been accepted as an important factor in determining service quality (see for example, Normann (1984), Lyth and Johnston (1988))

4.2 Existing Models of Service

Models of service were discussed in chapter 2. Table 4.1 summarises the main dimensions identified and shows their relevance to operations issues.

Dimension	Alternative	Relevant to
Contact		Front/Back shop Location
Labour Intensity		Automation
Customisation	Routinisation	Process choice Planning and Control
Tangibility	Object	Front/Back shop

Table 4.1 Dimensions of Service

Wemmerlöv's (1990) 'routinisation' is linked with 'customisation' on the grounds that it is similar enough to 'standardisation' and hence the inverse of this dimension. Object has been linked with tangibility on the grounds that tangibility reduces as the service is directed at the person rather than the possessions of the person. The association with operations issues is justified thus.

Contact. High contact services require that the customer has access, limiting the opportunity for centralised location and for high back shop content.

Labour Intensity. A labour intensive service is self-evidently a low automation service, though it may present greater potential for automation. The key issue is not whether the service is labour intensive, but whether it needs to be. It is possible, for example, to envisage counselling being carried out by computer using programs such as Eliza (given adequate speech recognition software), but it is unlikely that the customer for counselling would accept this substitution.

Customisation. The classic operations process structures (job, batch, flow, etc.) are closely linked to the volume/variety dimension in both manufacturing and service. The highly customised service requires much more flexibility from the service resource, implying a higher labour intensity and demanding an appropriate control system.

Tangibility. Generally the more tangible the service, i.e. the more it is directed to simple physical attainment, the lower the customer involvement and the greater the back shop content that is possible.

From the literature it appears that this four dimensional model of service (figure 4.1) is both adequate in that it embodies all the variables identified and appropriate in mapping onto the concerns of operations.

4.3 Existing Models of Service Quality

It is axiomatic that the main concerns of operations are with conformance quality and operations quality. Design quality is not irrelevant; an inappropriate design, delivered to specification will still show as a quality failure, and probably be laid at operations' door, so operations should recognise such failures but cannot take direct responsibility for their correction. In services the extent to which conformance and operations quality can be usefully separated varies with contact. Low contact services with a high back shop content can inspect quality in, high contact services take place in the presence of the customer and require either a high level of operations quality or good recovery strategies.

The main models of service quality identified in chapter 3 (reproduced in table 4.2) do not show any obvious link with operations' concerns although extrinsic factors are certainly front shop issues. What is notably missing from these models is any explicit treatment of subjectivity, despite the fact that from an operations perspective this is perhaps the key issue. The customer is the ultimate judge of quality, and the customer's judgement, particularly in services, is subjective. Performance specifications can be produced for the extrinsic/tangible/physical elements of the service with a reasonable expectation that they might conform to customer requirements/expectations, but it is far more difficult to achieve this with intrinsic elements where perceived performance is much more a matter of customer attitude and expectation. For example, it is common for response time to be set as a performance parameter for a service. It is both measurable and influenceable and has obvious relevance in most cases. The difficulty arises with the subjective response of the customer to a particular response time. Immediate service in a fast food restaurant may be appropriate to the busy worker on a short

lunch break who is familiar with the menu, but may be seen as pressurising the family on a day out who are not familiar with the range of options. Unpublished research into supermarket checkout services (Harridence, 1992) suggested that the elderly in particular preferred a more leisurely service both because they were in any case slower but also because they welcomed the opportunity for social interaction, while Boothe (1990) reports the case of a bank which found that action to reduce waiting times, while successful, reduced the perception of friendliness and decreased perceived quality.

Mels et al	**SERVQUAL**	**Grönroos**	**Lehtinen and Lehtinen**
Extrinsic	Tangibles	Technical	Physical
		Image	Corporate
Intrinsic	Reliability	Functional	Interactive
	Responsiveness		
	Assurance		
	Empathy		

Table 4.2. Service quality dimensions

Even with something as objective as duration, subjectivity is critical. From an operations perspective, any model should relate to the requirements of the service in areas such as this. It should identify where effort needs to be directed and where difficulties are most likely to arise, and it should map onto operations decisions which might damage quality.

4.4 The Three-Dimensional Model

The three-dimensional model described in the following, and the focus of the research was developed to overcome these perceived shortcomings. The three dimensions are not, in themselves, particularly original, having all been recognised in different ways by several authors, however the use of the three together as a complete model of service quality is new. It will be argued that it covers all the identified aspects of service quality in a manner which is directly relevant and understandable from an operations perspective.

Subjective/Objective. The subjective/objective dimension specifically overcomes the absence of this issue from the established models of service quality described above. It provides a measure of the degree to which the quality of that aspect of the service under consideration can be objectively specified. For example, in banking the availability of cash in cash machines is entirely objective since it is either there or not, whereas such issues as "Staff listen to me" or "Politeness of staff" are far more subjective. One customer's politeness might be another's obsequiousness. The issue here is not so much whether the aspect can be measured but the degree to which customers' perceptions are consistent. Speed/efficiency of transactions can be measured but customers' ideas of what constitutes "fast" are variable. The establishment of a value for this dimension would assist the service designer by indicating the nature and appropriateness of control measures and the need for allowing discretion to service personnel, as well as indicating opportunity/need for customer selection and training. This dimension, in particular, links to the issue of prior expectations, and the greater the subjective content of the service encounter, the greater contribution expectations would be expected to make to perceived service quality.

Process/Outcome. The subjective/objective dimension defines to some degree what can be measured. Equally important is what should be measured and an appropriate guide here is the extent to which the service is processing the customer or delivering an outcome. *This is precisely the distinction* that Wemmerlöv (1990) (the actual object of the service process) and Lovelock (1994) (People-Possessions) are making. Defining it as Process/Outcome simply brings it into line with the terminology normally used in service operations.

Soft/Hard. Explicit treatment of interpersonal contact is absent from both of the above dimensions. This is again self-evidently a key issue from an operations perspective and is identified by Chase (1978) (degree of customer contact), Schmenner (1986) (degree of labour intensity) and Haywood-Farmer (1988) among others. The term

Soft/Hard is used here. While derived from the Systems field (see for example, Checkland and Scholes (1990)) it is widely used in discussion of service issues. It is used here in the sense that Hard represents physical aspects of the service while Soft represents interpersonal interaction.

It is suggested that the Soft/Hard dimension is orthogonal to both the Process/Outcome dimension and the Subjective/Objective dimension, although there is perhaps more correlation with the latter in that objective aspects are more likely to be hard. Thus premises, equipment, and tangibles involved in the transaction are hard, whereas staff attitude is soft. It is widely recognised that soft issues are more difficult to deal with - "The soft side is harder" (Vandermerwe, 1993) - thus a measure of the relative importance of soft issues will give an indication of the likely difficulty of managing and improving service quality.

An element which was considered and rejected is the Tangible/Intangible dimension as this is well covered by Subjective/Objective and Soft/Hard.

In summary, three dimensions have been identified as shown in figure 4.1

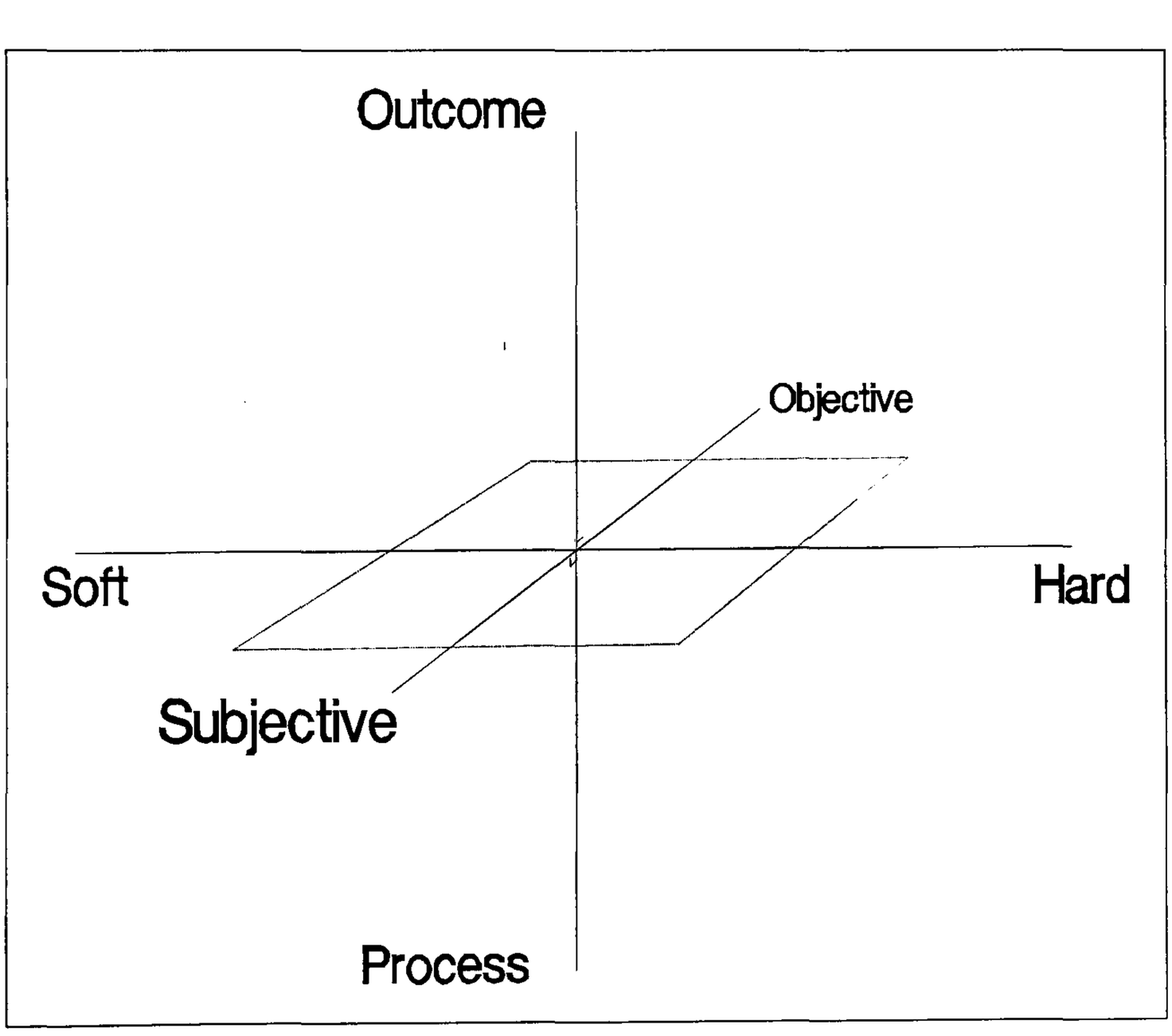

Figure 4.1 A three dimensional model of service quality

In many ways this model represents a bridge between service and service quality. It identifies a general set of service variables which have a direct impact upon quality and its measurement and control.

The relationship with the classification of quality developed in chapter 3 is clear. The Outcome/Process dimension would be expected to map onto the Design/Conformance dichotomy in those services where there are clear outcomes, (e. g. retailing, financial services) though this might be less clear in services where outcomes are less obvious (e. g. entertainment). The Hard/Soft dimension defines the extent to which interpersonal (soft) or facility (hard) issues predominate in quality perception, while the Objective/Subjective dimension defines the extent to which any measure of quality can be considered objective and reproducible. These latter two dimensions can be applied to all three quality types; Design, Conformance and Operations.

Its relationship with the various models of service quality shown in table 4.2 is less clear cut. Indeed each of the three dimensions can be mapped onto any of the quality dimensions identified in table 4.2

A number of examples will demonstrate this.

> The extrinsic/tangibles/technical/physical group, if dominant, is likely to represent a service wherein hard outcome issues are dominant. Objective criteria are also more likely to apply, but this is less certain. The drawing of cash from an ATM is a hard, outcome based, service. There is no interpersonal interaction and the objective is clearly specified – there can be no argument about the success or otherwise of the service. There is however, scope for subjectivity in such areas as queuing. Anecdotal evidence (customer interviews and information from bank employees) also suggests that the elderly in particular have serious concerns about safety and security. The reaction to service failure is also highly subjective, with an internal TSB study (unpublished) suggesting that a poorer than 95% service level led many customers to conclude that the particular ATM was not worth using because it was never working.

The Image/Corporate dimension is of little direct relevance to operations except in as much as the provision of the service should be congruent with the required image if the service is to be trusted.

The intrinsic/functional/interactive dimension(s) are more dominant in services which are process based and towards the softer end of the hard/soft spectrum. The perceptions of a pupil in a school will be influenced by interactions with the teaching staff and fellow pupils, interest in the subject matter and quality of presentation. The tangible end result of a certificate is too remote to be of any great immediate influence. This is certainly a soft service and although there is an outcome, the bulk of the service interaction is process based.

The three-dimensional model can thus be seen as embodying the dimensions identified in table 4.2. But improving upon them by:

- Discarding the irrelevant (to operations) corporate dimension.
- Explicitly adding the important subjective/objective dimension.
- Reclassifying Intrinsic and Extrinsic as the extremes of a continuum, but dividing it into the more operationally useful (more readily accessible, definable and measurable) dimensions of Soft/Hard and Process/Outcome.

Looking at the models of service (table 4.1), the three dimensional model also embodies the relevant issues.

Table 4.3 summarises the relationship.

Dimension	**3-D Model**
Contact	Soft/Hard
Labour Intensity	Soft/Hard
Customisation/Routinisation	
Object	Process/Outcome
Tangibility	Subjective/Objective

Table 4.3 The 3-D model related to other models.

The distinction between contact and labour intensity is not seen as particularly useful. High labour intensity in the front shop is the same as high contact, whereas

high labour intensity in the back shop is of little relevance since quality can be inspected in – back shop activities are no different to manufacturing operations. Customisation is certainly important from an operations perspective, but from a quality perspective it is less obviously distinctive and important (the quality required of a standardised service and the factors influencing its attainment are no different in kind to those involved in a customised service) and are seen as unnecessary complications.

4.5 Application of the Three-Dimensional Model

Continuous variables are all well and good, but simple classifications are easier to visualise and illustrate, and while they do introduce ambiguity on occasion they also eliminate the risk of spurious precision that a continuous representation can give rise to. If the dimensions are replaced by simple dichotomies the 8-cell model shown in figure 4.2 is obtained. This is an oversimplification, but achieves a level of clarity which any attempt to plot services in three-dimensional space would obscure.

Process	Outcome	Subjective	Objective
Hard		Cinema	Distance Learning
Soft		Personal Counselling	Teaching
Hard		Photographer	ATM
Soft		Osteopath	Investment Purchase

Figure 4.2 3 D Model simplified

The examples shown need a little explanation.

- Cinema. A process in that no permanent outcome is achieved. This applies to all entertainment services – it is the experience which counts. Interaction with service personnel is, however, incidental to the main service hence it is hard. While certain peripheral aspects of a visit to the cinema may be more or less objective (ease of parking, length of queue, comfort of seat, etc.) the main objective in most cases is to be entertained by the film. A highly subjective matter of personal taste.

- Distance Learning. Like the cinema, primarily a process (although improved skill, knowledge or qualification could all be desired outcomes, demonstrating the weakness of a dichotomy over a continuum). It is largely lacking in direct interpersonal contact, but does have a more objective measure of success in some form of assessment.

- Personal Counselling. In whatever field this is usually a highly interactive interpersonal contact hence soft. There may be some desired outcomes, but the service is essentially a process and the quality of the process largely depends upon the subjective perception of the customer.
- Teaching. Personal service delivery and therefore soft. Like distance learning, at the process end of the continuum, with the potential for objective measurement of performance through assessment/examination.
- Photographer. Not all cells need be occupied for the model to be applicable, and this particular example is not entirely convincing. It is certainly outcome driven – the object of the customer is to acquire photographs and subjective in that opinion of the quality of the photographs is driven by personal taste. It is perhaps strictly hard only in the context of automatic photo booths.
- ATM. Very clearly at the extreme end of the spectrum on all counts with no interpersonal interaction and a clearly definable outcome.
- Osteopath. In many ways similar to Personal Counselling. There is substantial interpersonal contact, but the service is much more outcome driven. Like many treatments for medical conditions, the evidence for the success of osteopathy is very mixed suggesting a high degree of subjectivity.
- Investment Purchase. Buying an investment from a Financial Advisor involves a high degree of interpersonal interaction, it is, however, outcome driven (generally the customer speaks with the financial advisor because they wish to buy an investment rather than vice versa). In theory, the quality of the investment advice is subject to objective judgement.

The examples are fairly arbitrary, but are chosen to illustrate the idea that any service can be classified using the model. Where there is doubt about a particular classification it is likely to have arisen from the limitations of using a dichotomy rather than a continuum. Accuracy has been sacrificed for clarity and simplicity.

The relevance of the model to the operations decision areas outlined earlier is as follows.

Process Choice. Economic necessity tends to drive standardisation in services as in manufacture. While it might be argued that the more subjective and soft services require greater flexibility, the fact remains that even something as individual as personal counselling is rigidly time constrained and tends to follow a broad script. Many personal services are Jobs in the sense that they are individual and discrete, but they still tend to be highly standardised. Process choice is generally self-evident and has little direct impact upon quality.

Location. In general process services need a location convenient to the customer since the customer must participate, but this can be overcome by visiting services and/or communications technology. Outcome services might seem to be less driven by locational constraints, but this is not in fact the case – three of the four services illustrated require the customer to visit the service outlet. Hard services in general are more likely to require convenient locations given that it is easier for service personnel to visit than for service hardware, but even here there are many exceptions i.e. visiting car maintenance services.

Automation and Labour. By definition, soft services are labour intensive while hard services at least show the potential for high levels of automation. There is also more scope for automation in outcome based services, (Internet shopping and banking for example completely remove the interpersonal element of the service). Subjectivity will almost always be greater in services which involve interpersonal contact.

Planning and Control. Hard, objective services will always be more predictable as the intrinsic variability of interpersonal contact is absent, and the objectivity of the performance standards ensures that there can be little disagreement about whether or not they have been met. It is also easier to plan and control outcomes than processes since there is less likely to be ambiguity. There is no doubt that the

financial advisor has sold an insurance policy, although there may be doubt about whether it was appropriate. On the other hand, in the case of teaching, there may be no doubt that a 30 minute tutorial has taken place, but there may be considerable doubt as to whether any learning occurred.

Front Shop/Back Shop. This shows strong similarities to the automation/labour. Outcome and hard services can generally have a much higher back shop content.

In general the three dimensional model has little to contribute to decisions on process organisation and location, but is useful in considering the other three areas. The relationships are summarised in figure 4.3

		Subjective	**Objective**
Process	**Hard**	Automation Back Shop Less Predictable	Automation Back Shop Predictable
	Soft	Labour Front Shop Variable	Labour Front Shop Variable
Outcome	**Hard**	Automation Back Shop Less Predictable	Automation Back Shop Predictable
	Soft	Labour Front Shop Variable	Labour/ Automation Back Shop/ Front Shop Less Predictable

Figure 4.3 Relationship between the 3-D model and operations issues.

4. 6 Relevance to Quality Management

The relevance of this model to quality management lies mainly in its ability to direct attention to appropriate areas. *This implies that the service* (or aspect of the service in multi-faceted services) has been correctly identified and specified. Treating a service as hard and objective when the market is seeking something soft and subjective may make specification and control easier but will not improve quality. In other words, the service design should be appropriate and design quality should be good, but the importance of design quality will be greater in outcome based services since the process has less influence upon perceived quality and cannot compensate readily for inadequacies in the design. It will also be greater in hard services since the hard elements can and should be clearly specified. The boundary between conformance quality and operations quality blurs with the increasing involvement of the customer – quality cannot be inspected in if the customer is present. Therefore, while conformance quality is always important, in those services where there is a high level of interaction, e. g. soft services, operations quality becomes particularly important. This relationship is summarised in Figure 4.4

		Subjective	Objective
Process	**Hard**	Design Conformance Operations	**Design** **Conformance** Operations
	Soft	Design Conformance **Operations**	Design Conformance Operations
Outcome	**Hard**	**Design** **Conformance** Operations	**Design** **Conformance** Operations
	Soft	Design Conformance **Operations**	Design Conformance Operations

Figure 4.4 Relationship between the 3-D model and Quality Types.

In all services which involve interpersonal interaction, the skill and ability of the customer contact personnel is seen as a key determinant of quality (see for example, Normann (1984), Carlzon (1987), Lyth and Johnston (1988), Vandemerwe (1993), Simons (1995)). It is in this area that the model probably has the greatest potential as it can clearly identify those services where the influence of staff on quality is greatest, and those where a reliance upon staff discretion is most necessary. In other words it directly links to both staff skill needs and the control and reward system.

This is not to ignore the customer, since the customer is often used as labour in service operations, and the customer is, in the last analysis, the only relevant judge of quality, skill issues apply to customers as well as staff. Customers, however, are not usually available for training of any intensity, so the emphasis in well designed services is more likely to be upon customer selection (targeting), and design of the

service operation to minimise the risk of error. This particularly applies in low contact, i.e. hard, services.

Considering some of the examples shown in figure 4.2, customer selection for the cinema, is influenced by extensive publicity, certification schemes, and the review process. The aim is to ensure that the customer is informed about the nature of the film so as to reduce the probability of a mismatch between expectations and outcome. Customers self-select, but on the basis of high levels of information. On entering the service environment, customers are faced with clear signposting to ensure that they follow the process correctly.

To use an ATM, the customer must at least show sufficient intellectual capability to open a bank account in the first place; thereafter ATMs rely heavily upon clear and simple instructions and warnings and learning through repeat behaviour.

4.6.1 Staff Skill Requirements

In the softer services staff are available to deal with customer uncertainty/ incompetence, so the issue of customer training is far less important.

The key issue for staff skill is the degree of subjectivity, and by implication, predictability, of the service. The objective, predictable service can be expected to follow a fairly clearly defined path, with well-defined outcomes. This type of service may be considered appropriate for operating on the basis of a script, since both the customer and the service personnel will be aware of the nature of the service, and the expected route that the service will follow. Research has shown (see for example Smith (1993)) that quality perception is closely related to the fulfilment of customer expectations in this situation. The objective, soft service thus requires service personnel who can learn, and convincingly portray, a variety of more or less well defined scripts, selecting the script appropriate to the situation. One of the problems with too rigorous scripting is that the performance can become too obviously just a performance. The rote formula "have a nice day" can sound sincere, but is so often uttered without thought or meaning that it becomes *offensive. For scripting to work, staff need to be able to act. Selection therefore* requires

acting and memory skills, training is mainly devoted to ensuring that scripts are learned and presented correctly in appropriate circumstances.

The soft, subjective service is the most demanding. Whether product or process based, well developed interpersonal and communication skills are essential. In the example of personal counselling this is very obvious, the counsellor should be able to listen, but also to interpret, to anticipate, to guide and to respond to the unexpected. High levels not only of interpersonal skills, but frequently of professional skills, are required together with an ability to respond rapidly and positively to unexpected situations. While the degree of customer participation in the case of the osteopath is less, communication is still essential, and an osteopath without appropriate interpersonal skills would not generate satisfied customers no matter how great his/her technical competence.

It is worth reiterating that a service encounter may well involve more than one service type. A visit to a Doctor's surgery is initially a highly scripted objective process. The interaction with the receptionist, and the initial interaction with the Doctor, follow well established scripts. It is only as the consultation progresses that the service moves towards the subjective, where the customer is expecting an individual tailored response. It is a frequent complaint that consultations with General Practitioners rarely get that far. Lack of time can lead to the repetition of the script throughout the consultation.

The acquisition of appropriately skilled staff is one thing, their effective utilisation and retention another. The operations infrastructure needs to be appropriate.

Holzinger (1992) describes a situation where both staff skills and the operations infrastructure were found to be inappropriate in a real estate company in the USA. Real estate sales are an outcome based service, fairly hard and objective. The client is seeking to acquire, or dispose of, property. The service provider is being asked to provide at least three linked services:

access to a source of property, or buyers

carrying out a number of the administrative task involved in the transfer of ownership

advice and assistance

It is in this latter area that appropriate service personnel behaviour is most important in its influence upon quality perceptions. In common with many such organisations, the staff of the company described were technically competent, but their customer contact training was almost exclusive devoted to selling skills. This was reinforced by a high proportion of salary being based upon individual commission. In effect, no service training was given at all, because, whatever customers are seeking to buy from a service organisation it is not "being sold to". During a quality improvement programme, the company realised that customers were seeking to buy advice. It changed its training to stress the advisory element of the transaction and downplay the selling element. The training required was modest and fairly mechanistic and built upon the technical skills already present. It was, however, reinforced by removing the individual commission and giving a higher basic salary with group bonuses based upon customer satisfaction. The outcome was a sustained growth in demand, and, despite a written customer charter guaranteeing satisfaction and thus inviting complaint, only one complaint in 10 years.

This is not a unique example and a number of retailers in the UK and elsewhere are beginning to realise that selling, rather than advising, actually drives customers away. What is not always realised is that the reward system should support the training system. Payment by individual commission gives a clear signal that selling is the main target, regardless of the aims of training programmes or company policies. This is a root cause of many of the recent problems associated with the UK financial services industry.

Figure 4.5 shows the relationship between skills requirements of the service personnel and the eight service types. The actual entries under Hard are perhaps redundant since extreme hard services (the ATM for example) do not involve service personnel at all. The interpersonal elements in hard services are usually minor (e.g. buying refreshments at the cinema) but are best treated as services in themselves, and classified accordingly.

In the case of soft services, the bold features are considered the most important. Subjective services demand flexibility and responsiveness from service personnel to allow the service experience to be tailored to meet the customers expectations. This is less important with objective services where consistency is probably more

important (Smith (1993)) and a more mechanistic approach is desirable. Again, high levels of interpersonal skill are less important with objective services since the server response is largely governed by the script.

		Subjective	**Objective**
Process	**Hard**	Responsiveness Technical Skill	Technical Skill Mechanistic
	Soft	Interpersonal Skills **Responsiveness** Technical Skill	Interpersonal Skills **Mechanistic** **Technical Skill**
Outcome	**Hard**	Responsiveness Technical Skill	Mechanistic
	Soft	Interpersonal Skills Responsiveness Technical Skill	Interpersonal Skills **Mechanistic** **Technical Skill**

Figure 4.5 Skills Requirements of Service Personnel.

The control and reward infrastructure is closely tied in to this classification.

4.6.2 Control and Motivation

Staff performance is intimately linked to customer perceived quality. Staff performance is also closely related to motivation and to control.

Lawler and Rhode (1976) identify eight elements which characterise a control system.

Element	Possible Characteristics
Sensor measure	Complete – Incomplete Objective – Subjective Influenceable – Noninfluencable
Performance Standards	Difficult – Easy Set by person, superior, peers, etc.
Discrimination Source	Person, superior, peers, etc.
Communication pattern	Person, superior, peers, etc.
Communication speed	Immediate – Delayed
Communication frequency	Continuous – Discontinuous
Type of activity	Important – Unimportant
Source of motivation	Extrinsic - Intrinsic

Table 4.4 Elements of a Control System (after Lawler and Rhode (1976))

While not immediately obvious this is virtually identical to the model described in chapter 3 and reproduced in figure 4.6

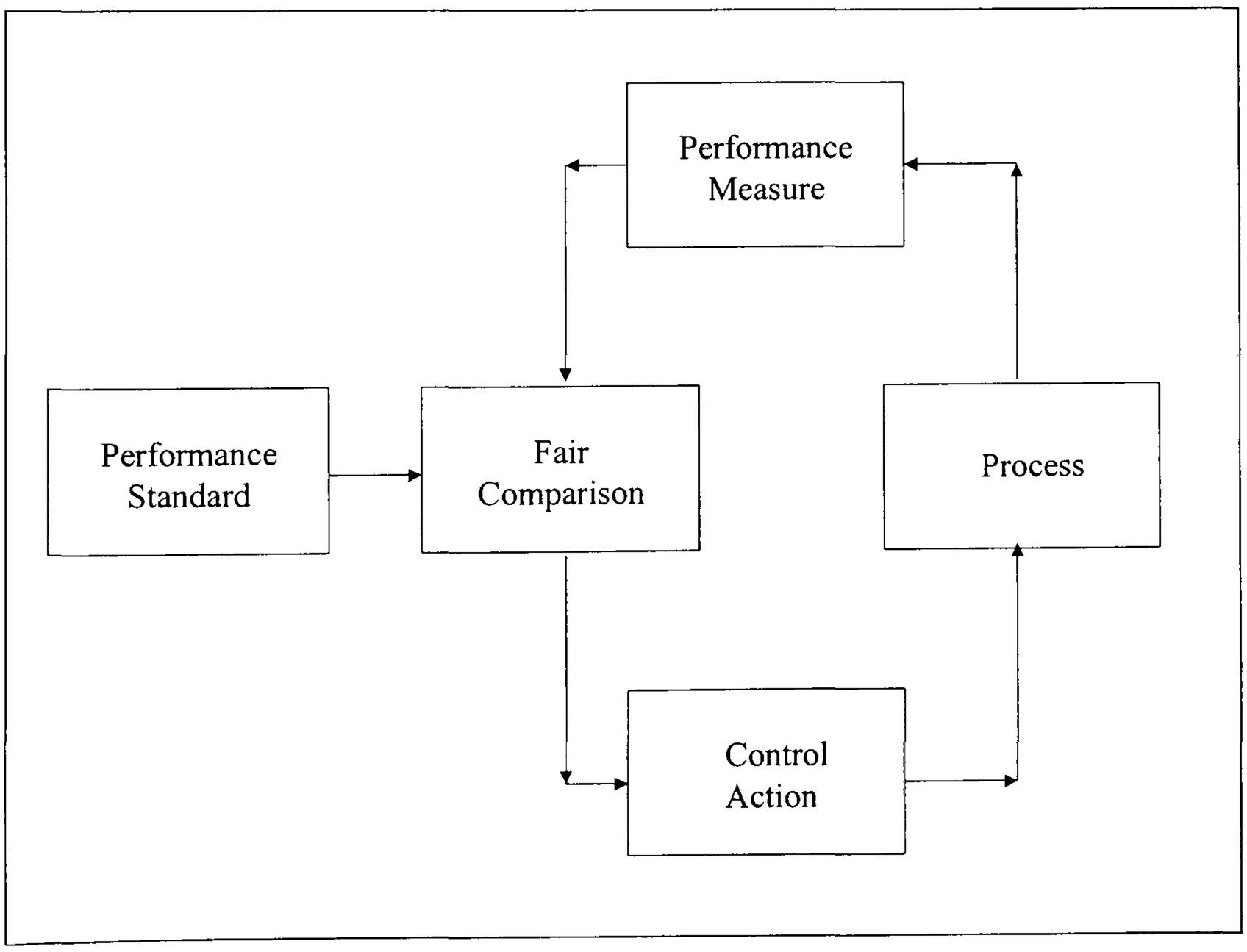

Figure 4.6 Simple Control Loop

Lawler and Rhodes are simply more explicit about the communication links in the model and take it for granted that control action is intended, though its efficacy is implied in the 'Influenceable – Noninfluencable' continuum.

Lawler and Rhodes go on to identify the circumstances necessary for effective control in a variety of circumstances. In particular, they find it necessary to discriminate between tasks and systems which depend upon intrinsic motivation and those which depend upon extrinsic motivation. Extrinsic motivation is quite simply defined as

> "Individuals in organisations will be motivated to perform in the way they feel leads to rewards" (p 46)

while Intrinsic motivation depends upon rewards which

> "can only be given to individuals by themselves". (p 65)

Extrinsic motivation is much easier to understand and manage because it is within the gift of the employing organisation. With intrinsic motivation, the best that an organisation can do is foster an environment wherein employees reward themselves for effective performance. Notwithstanding this difficulty, intrinsic motivation is generally more powerful and less open to abuse when it is appropriate.

Tables 4.5 and 4.6 show the characteristics ideally required for control systems using intrinsic and extrinsic motivation respectively.

Element	**Characteristics**
Sensor measure	Complete Objective Influenceable
Performance Standards	Moderate difficulty Set by person
Discrimination Source	Person, other credible source.
Communication pattern	Person.
Communication speed	Fast
Communication frequency	Time span of task
Type of activity	Important High autonomy and variety

Table 4.5 Elements of a Control System for Intrinsic Motivation

Element	Possible Characteristics
Sensor measure	Complete Objective Influenceable
Performance Standards	Moderate difficulty Set by person, and superior
Discrimination Source	Joint between person and other trusted source
Communication pattern	Person, superior with reward powers, peers
Communication speed	Fast
Communication frequency	As frequently as possible
Type of activity	Important or unimportant
Source of motivation	Rewards that are important

Table 4.6 Elements of a Control System for Extrinsic Motivation

Incomplete measures, for example, are likely to lead to dysfunctional behaviour, particularly if important elements of performance are not included. An example from personal experience is that of a retail store group which simply set a target that each sales operative should enrol five new account customers each week. The predictable result was that the majority of new accounts were rejected by the credit rating system and there was no incentive to encourage existing account customers. Ability to influence measures is often taken for granted, but Bailey (1994) refers to a situation in which public sector managers forced changes to a training programme when they realised that critical factors in improving customer care were in fact out of their control.

Despite these ideal requirements, perfect completeness and objectivity are rarely obtainable. With intrinsic motivation a greater tolerance of incompleteness and subjectivity is generally present, provided there is significant overlap between the objectives of the employee and those of the employer.

Equally, despite the desirability of joint standard setting, even with extrinsic motivation, and effective and appropriate communication the realities of

standardisation, particularly in mass services impose compromises even when there is a will to design a good system.

Table 4.6 indicates that important tasks with high autonomy and variety are most suited to control through intrinsic motivation. This is consistent with those services which are Soft and Subjective, which require high levels of interpersonal skill and responsiveness and which are staffed by personnel with a high level of skill and training. Those services which are mechanistic and predictable are unlikely to generate intrinsic motivation, but in any case generally require a degree of standardisation that implies external oversight of control.

Linking the control system requirements with the 3-D model gives the outcome shown in figure 4.6

		Subjective	**Objective**
Process	Hard	Extrinsic	Extrinsic
	Soft	Intrinsic	Mixed
Outcome	Hard	Extrinsic	Extrinsic
	Soft	Intrinsic	Extrinsic

Figure 4.5 Control System Requirements.

Where intrinsic controls are assumed when extrinsic controls would be more appropriate the likely result is chaos. To quote a TSB employee commenting upon the fact that there were no service quality standards, although there was a high degree of commitment to customer service

> "That causes problems when our customers go elsewhere and you say it will be all right but the other branch don't do it"

Most multi-site service operations require a degree of standardisation.

Sub-optimal performance and even outright conflict can also arises when extrinsic control systems are imposed upon tasks which satisfy the requirements for intrinsic motivation. Gaster (1995) in particular has highlighted the impact of attempts to introduce private sector quality concepts into the public sector

> " The simplistic and missionary way it is often presented and introduced ……. can easily alienate staff". "The pressure on individuals to conform and compete with each other places the emphasis on reaching achievable, generally quantitative, targets….."(p viii)

In an environment where some, at least, actually believe in 'public service' this imposition of extrinsic control can seriously damage motivation.

While Lawler and Rhodes (1976) give the most complete description of the role of the control and information system in terms of personal performance, others have identified similar characteristics at least in part. Wexley and Yukl (1984) for example suggested that a payment by results system (extrinsic motivation*) should embody:*

- Performance related to effort
- Accurate measurement
- Obvious link between achievement and reward
- Large enough reward

In another example Tompkins (1992) describes the Xerox Company's successful attempts to improve customer satisfaction by improving workforce morale and motivation.

Donnelly (1994) observes similar characteristics in a discussion of the opinions of public sector managers from the library and leisure sectors. This identified key motivating factors which included the need to be valued by both customer and employer, high quality training, adequate support to allow innovation and development, and the need for consultation in determining the organisations objectives. On the negative side were the creation of expectations that were difficult to achieve and negative external perceptions and pre-conceptions. Overall it was felt that increasing staff involvement and devolving decision making were strong positive steps. This is a category where a high degree of intrinsic motivation would

be expected and certainly corresponds with the requirements of the Lawler and Rhodes model for standard setting, discrimination and type of activity.

4.7 Conclusions

The three-dimensional model of service quality, while building upon existing models of service and of service quality, expresses the intrinsic complexity of the service situation in a way which maps well onto the concerns and needs of the operations function. In particular, it classifies services into eight categories and can be used to identify the particular operations requirements of each category.

Not all operations decisions are critical for each category, but the central argument of the research is that failure to match the operation to the category in critical areas will result in poor quality of service. It is further suggested that this match can be progressive and that variations in performance between service providers may be due to the extent to which they achieve an appropriate match. The remainder of the thesis is concerned with the testing of this hypothesis.

5. Methodological Issues

This chapter explores the important methodological issues and decisions made during the project. It does not describe the main research process in detail as this is covered more appropriately in chapter 7. This separation incurs a penalty of repetition, but since the actual research process took place in several discrete stages this introduction is necessary.

5.1 General considerations

The object of the research is to develop and validate a more or less general model of service quality which is relevant to operations decisions. This self evidently requires fairly large-scale data collection over a range of service industries. The validity of the model can only be demonstrated by considering its relevance to a variety of service industries with different characteristics. Concentration upon a single industry would only imply relevance to that industry, assuming a positive outcome.

Against this, the investigation of a wide enough range of industries to claim genuine representativeness is obviously impossible with the resources and time available.

The research essentially spans the Inductive/deductive divide (Gill and Johnson (1991)). The model of service quality has been developed in part from observation of the inadequacies of existing models and is thus essentially deductive, as is its testing. However the development of the model was in part inductive since it arose out of empirical observation, and its further testing will, no doubt lead to refinement and modification. The approaches are not exclusive and are being used in an appropriate balance.

Another important classifier of methodologies is the Nomothetic/Ideographic dichotomy (Gill and Johnson (1991)). It seems self evident that the aim of the research is more suited to a nomothetic approach, since a generalisable model is to be set up and tested. Against this the structures of service quality are to an important degree subjective and experiential. This suggests that data collection methods more suited to Ideographic research might be appropriate.

The research is not, by its nature, and the constraints of time and resource, experimental. In as much as comparisons are made, these are made by observing and comparing different naturally occurring groups, rather than manipulating the research environment. Equally, action research is not undertaken at this stage, although it may well be an appropriate follow on strategy, in persuading an organisation to alter its operations policies to bring it in line with the predictions of the model. This, however, lies without the scope of the project.

The original impetus for this research came from a survey carried out by the consultancy, Research International Specialist Units Ltd. 31 aspects of service relevant to quality were generated during panel discussions with 50 customers. These were converted into a questionnaire which was completed during interviews with 439 current/deposit account customers of TSB bank. In an essentially inductive approach, attempts were made to model this data in a form which made sense to bank operations, and the established models (see chapters 2 and 3) were found wanting. This positivist research methodology is well established, and is the cornerstone of nomothetic research, but it has its critics and is worth considering in more detail.

5.1.1 Positivism

The basic positivist philosophy assumes a separation of subject, the researcher, from object, the researched. The experiment, mimicking the methodology of the hard sciences, is set up in such a way that all variables are controlled for, resulting in predictability and reproducibility. While the philosophy does not demand a quantitative, statistically based approach, it is usual that statistical significance is aimed for.

Mishler (1986) in particular has argued that the positivist approach frequently does not even meet its own criteria for reproducibility. For example interviewers do not always follow scripts precisely to ensure that observer effects are minimised. The idea that the respondent is a passive participant in the experiment, responding in a reproducible way only to the stimulus of the question, is also a very questionable presumption.

He suggests that the major objections to the positivist approach are, however, centred upon what is omitted. No attempt is made to establish common language and understanding between the researcher and the respondent. Indeed such an attempt would undermine the whole principle of control and reproducibility upon which the methodology is based. If explanations are to be given, they are given sparingly and only by use of prepared scripts. Respondents thus respond to the stimulus of the question, as they must, but their perception of the meaning of the question may be quite different to the researcher's. It is axiomatic that researchers share a worldview, vocabulary and educational level which is different from that of the majority of consumers, and researchers design questionnaires. A major omission, therefore, is that of establishing a common understanding.

The second major omission lies in the questions asked (or not). Answers will only be obtained to the questions in the instrument. However generated, they reflect what the researcher thinks important, not necessarily what the respondent thinks important. The addition of open questions at the end does not redress this balance. The power relationship has already been established since the researcher has control and has the majority of the space. Important issues may be omitted altogether, though careful development and piloting reduces this risk. Also significant is the "motherhood" effect. Issues which respondents feel obliged to rank as important, but which do not really influence their behaviour. For example, in seeking to identify what is important to food purchasers, cleanliness/hygiene is often included as an issue. When it is, it is usually ranked very highly, yet simple observation shows that shoppers do not actually inspect stores for cleanliness before choosing to shop. It is not, in fact, a competitive issue, but an entry criterion and attempts to improve cleanliness beyond a certain acceptable minimum will have little effect upon competitive advantage.

A disadvantage of the positivist approach which has not been widely published is its reliance upon statistical inference. In the hands of statisticians this is a very powerful tool, but, since statistical inference can prove nothing, it should be used with caution. The recently developed wide availability of powerful statistical analysis engines has resulted in the situation where most researchers can carry out sophisticated statistical analyses with little cost in time or effort, and without necessarily very much understanding. The widespread use of the 5% significance level as a cut-off means

that 1 in 20 of all claimed significant relationships are in fact spurious. This can at least be quantified, what is less clear is the large number of relationships which fail to meet the 5% significance criterion but are nonetheless genuine.

5.1.3 Alternatives

The alternatives to positivism are not necessarily less problematical. In general, they are far more expensive, are not subject so readily to the, admittedly flawed, rigours of statistical inference, and are much less likely to lead to generalisability.

It can be argued that in some of the major areas covered by this research, namely consumer perception of service quality, and staff responses to control and reward systems, subjectivity is an important element, and positivism is therefore an inappropriate approach. The counter argument, however, is that humanity en masse can be statistically modelled, and is therefore predictable. If the scale is large enough positivism is applicable, provided the starting point is sound.

Subjectivity is allowed, even encouraged, in the preliminary stages of the research, and this subjectivity informs the development of subsequent positivist instruments.

The methods used include:

> Participant observation: the researcher is, like most people, a customer of services, but is also customer contact staff within a service organisation. This experience is valid, but could not, in any case, be disregarded.
>
> Interview: a generic term which covers the whole range of methodological approaches, however the unstructured interview, while time consuming, does give the opportunity to explore issues important to the respondent. It is less likely to impose the researcher's views, values, or meanings upon the respondent, and gives the opportunity to establish common vocabulary and understanding.
>
> Survey: There is really no alternative to the questionnaire based survey to collect a sufficient volume of data to demonstrate the validity of the model developed, and it is the only really efficient

method of collecting data about customer perceptions in mass market services.

5.2 The Research Process

The research direction arose out of the analysis of previously collected data which indicated the inadequacies of existing service quality models (Blanchard and Galloway (1994)). This data was collected by a professional market research agency using focus groups to identify issues followed by questionnaires to provide statistical significance. This happened to be carried out in retail banking, but there was no deliberate or conscious choice of that particular service.

Given that the objective of the research is to arrive at a generalisable model, it can be argued that any service will do. The main criteria to be satisfied are:

Variety. As stated above the more varied the services investigated, the greater the confidence in the generalisability of the model.

Access. A pragmatic, but vital consideration. A service which was unlikely to give ready access, however valuable on other grounds, would be of little value.

Measures of Quality. Validation of the model requires that it predicts variation in quality, so some measures of quality of reasonable validity are essential.

Three Services were originally identified as satisfying these criteria. Figure 5.1 shows their disposition within the three-dimensional model demonstrating variety. Executive search was the most difficult of the three to place, as it seemed, on a superficial aquaintanceship, to occupy the middle ground. As it was not pursued, no further effort was made.

		Subjective	Objective
Process	**Hard**		
	Soft	Education	
Outcome	**Hard**		Retail banking
	Soft		Financial services component of Retail banking

Figure 5.1 Services chosen

Retail Banking

A widespread and reasonably standardised profit making service with a retail market. A high level of quality awareness within the industry, with all the major UK retail banks embarked upon some form of quality initiative during the late 1980s and the 1990s, meant that the research was relevant, increasing the probability of access. The presence of existing contacts at senior level was also an important consideration. Access to customers would give some independent measure of quality.

Executive Search

A varied, in terms of scale of operation, profit making service. A mixed market having both individual and corporate clients. Less standardised than banking with a higher degree of contact. While ready access was believed to be available, preliminary discussions suggested a low awareness of service quality issues, together with a lack of any independent indicators of quality. The only ways in which quality might be measured in this context were through subjective views of

service providers - deemed highly unreliable – or through direct access to customers. This latter course was deemed prohibitive in terms of resource requirements. It was also believed that executive search companies were very unlikely to give introductions to clients, especially when the result might be to raise questions about the quality of service they were providing. This area of study was therefore not pursued.

Primary and Secondary Education

A large-scale public sector service with a great deal of variation in size and client group. A high contact service, at least with the main client group – children. This is a service in which quality currently has a very high profile as a result of frequent government intervention. The author's understanding of the service, as a parent and a school governor, and access to a number of senior level contacts were important considerations. Independent measures of some aspects of quality (examination and test results, inspection reports) are in the public domain. It was also believed that schools would be able to provide a reasonably well-informed opinion of their own performance.

5.2.1 Retail Banking

This exploratory phase was concerned with establishing the important parameters of service quality from both the customer and service provider viewpoint. It arose out of a dissatisfaction with models based primarily on nomothetic/deductive methods. It was therefore felt that an inductive/ideographic strategy was more appropriate and the unstructured interview was chosen in order to allow the respondents to discuss what was important to them with as little intervention as possible from the interviewer. A planned fully unstructured interview is almost impossible. The location and invitation both serve to set an agenda, as do the introductory exchanges. The script used (see appendix 1) was, however, designed to minimise intervention and direction. Generous time limits were set to ensure that time did not constrain the discussion, and interviews were recorded to eliminate the distraction of note taking and maximise the potential for subsequent analysis.

Interviews were carried out over a number of days in three branches of TSB within the West Midlands. While TSB were embarked upon a TQM programme at the time, perceived success varied within the organisation. The area chosen (by TSB) for the interviews was chosen because the area manager was a strong quality champion and it was believed that quality performance would therefore be high.

In all six customers and six customer service staff were interviewed. The author had little input into the selection process. Branch managers invited the customers and nominated the staff. It is certainly possible that those selected had been chosen to show the branch in the best light (although there was no evidence of this) but there was no evidence of any rehearsal of the respondents – indeed this would have been impossible since the brief provided to branch managers was too vague and they were far too busy to spend that sort of time on what some thought was a "student project".

No claims are made for representativeness in the sample. The research was designed to explore the beliefs/feelings/opinions of the interviewees concerning service quality within the particular bank.

5.2.2 Primary and Secondary Education

While retail banking was used to formulate the model, education was chosen as the vehicle to test it. The choice was based upon the following observations:

> It is a manifestly different service to retail banking, thus giving a necessary contrast.
>
> It is not, despite the best efforts of government and OFSTED, standardised; thus it gives scope for variety in structure, performance and operation.
>
> A large number of varied service providers are available.

The research at this stage was intended to demonstrate that variation in factors identified in the model related to variations in quality. It therefore required a range of service providers (schools) which differed in their organisation and their quality performance. The research was not directed at saying anything about schools or educational quality in general, therefore there was no particular need for any sample

of schools investigated to be representative. For this reason, the schools within the city of Leicester and the Counties of Leicestershire and Rutland were chosen as the sampling frame. It was hoped that this geographic proximity would encourage co-operation and also make preliminary investigation and any necessary follow up more convenient. An additional possible benefit was a reduction in the possible contribution of the education authority as a variable (only three authorities are involved, and they were until 1997 a single authority).

The methodology adopted followed the classic pattern of:

Interviews with relevant members of the population to formulate the terminology, issues and availability of data.

Questionnaire design and piloting

Data collection

Coding and analysis

The whole process was informed by a degree of participant observation stemming from the author's role as a school governor.

Five schools within Leicester were chosen for in-depth interviews with senior management. Two were primary and three secondary, all were medium to large, and all had Heads/Principals with a strong awareness of the importance of quality. All were state schools. It may be argued that this is not representative, however the object was to explore, with senior management, issues related to quality in education, its relevance, definition and influences upon it. Interviews with informed and committed staff were expected to be far more informative and productive, and so it materialised. In all, interviews were carried out with four principals and two vice-principals at the five schools. The interview brief is shown in appendix 2.

Analysis of the interviews led to the development of the questionnaire. This was piloted first with the author's supervisors and then with the interviewees who completed it without difficulty. The only comment was the suggestion that a space for "Own Definition" was inserted into the quality definitions section. This was done, but no respondents actually made use of the facility. The final version of the questionnaire is in appendix 3 together with the covering letter.

The City and County Education Authorities were approached for support in return for summary report. The City responded enthusiastically, allowing their support to

be highlighted in the covering letter (appendix 3) and sending their own letter to all schools urging their co-operation . The county referred the matter to a committee who replied in the negative on the grounds that schools were overworked and the questionnaire itself was far too subjective. The impact of this was slight since the return rate from City and County schools did not differ significantly.

The questionnaire with the covering letter and a stamped addressed envelope for its return was mailed to all schools during April and May 1999. The Leicestershire telephone directory was used as a readily accessible sampling frame (the city authority offered to undertake the distribution to city schools, but in the absence of co-operation from the county it was felt preferable to treat all potential respondents alike. Even if the county had co-operated, independent schools would have required a separate approach). In all 363 questionnaires were mailed.

5.3 Questionnaire design

Converse and Presser (1986) identify the following key issues in successful questionnaire design.

- **Simplicity** of structure and language. This ensures clarity by avoiding "elevated" language, double negatives, implicit negatives, long lists and overlong questions. All faults which might lead to erroneous completion or even non-completion.
- **Common Concepts**. The language used should be used in a way which is familiar to the target respondents.
- **Manageable**. The data required should be readily available to the respondent within the time likely to be devoted to completing the questionnaire.

Another important element omitted by Converse and Presser is

- **Interest**. Particularly with self completed questionnaires, the topic and the questions must catch the interest of the respondent. Alternatively there must be some reward or threat of sufficient magnitude to encourage completion.

Fowler (1995), in considering question design suggests four very similar key criteria which questions should meet:

- Consistent understanding by respondents
- Consistent communication to respondents
- Accessible information
- Willingness of respondents to answer

Consistent communication was ensured by adopting a common style throughout the questionnaire and, where scale answers were required, adopting a standard scale throughout. The other three aspects were addressed partly through the initial interviews, which established the issues and terminology to be used and the sort of information which respondents had readily to hand and were willing to share. The piloting of the questionnaire verified the conclusions drawn from the interviews.

Wherever possible, judgement free language was adopted, with no negatives, single, implied or double. The balance of language was believed to be appropriate to the target audience, all of whom were qualified and experienced professionals.

Layout was designed to be simple to follow and complete. There were no branching or alternative questions, and clearly identified space was provided for each answer.

Content

The questionnaire was developed out of a basic information requirements list and the link between information and questions is shown in appendix 4. It is important to distinguish between factual questions based upon classification, factual questions to which precise numerical answers are required, factual questions where an approximation is acceptable and questions which are essentially asking for opinion, feeling, or attitude.

Simple classification questions used pre-specified answers. In most cases these were exhaustive, but where this could not be assumed "other" was included.

No real attempt was made to distinguish between questions for which accurate numerical answers were required and those where reasonable approximations would

do. In fact great accuracy was probably not required for any, but the evidence is that the respondents had a good grasp of the data requested and responded accurately.

Some verification of statistics such as roll was carried out by relating the respondents' figures with those given on the DFEE website and no significant differences were found. (The DFEE website is, however, not necessarily more accurate than the school figure).

Order

A study of order effects carried out by Philips, Harrison and Balabanis (1999) suggest that they are generally considered to be less important in self completion questionnaires and in fields where the respondent is familiar with the material. Within question order effects are avoided by keeping questions short avoiding problems of primacy and recency. Order effects over the whole questionnaire are only likely to be significant if the questionnaire is not read through before completion. Certainly a possibility, but unlikely given the demands upon the respondents. The intention was that respondents should give considered answers to the opinion based questions and factual answers to the others. The first opinion based question – seeking the relative importance of the various stakeholders – was designed to ensure that subsequent questions on quality were considered in a broader light than might otherwise have been the case.

Scales

A seven point Likert scale was used throughout with minimal verbal equivalents. In general a scale of greater than 10 leads to no worthwhile additional information (Fowler 1995), while a scale of five, perhaps the most common, was rejected because it would lack discrimination in the event of generally skewed answers. It was anticipated that some questions would lead to heavily skewed answers and this was in fact the case. Seven was deemed a reasonable compromise. Numerical scales were used because of the difficulty of producing unambiguous verbal scales for more than 5 categories. Scale direction was constant.

5.4 Analysis

Analysis was, in the main, based upon well-tried statistical techniques. The basic approach adopted was to first identify and correct for any external influences on performance, then to investigate the impact of internal factors upon the residual performance.

The external variables were all either nominal (e.g. school type) or ratio (e.g. pupils receiving free school meals) measures. The external measures of performance (GCSE and SATs scores) were also ratio measures.

The internal measures were more varied and include nominal (e.g. responsibilities) ordinal (e.g. internal measures of performance) and ratio (e.g. staff). In addition two questions (quality definitions and management styles) used sets of nominal variables intended to investigate underlying constructs.

5.4.1 Standardisation

The external measures of performance for primary and secondary schools are different, although both are examination based, and are presented differently. In both cases the overall composite score of the school was used as the basis for comparison and these scores were then standardised. This action in itself has no bearing on the analysis, but enabled a common measure to be applied to both primary and secondary schools. It was acknowledged that the two types of school are likely to be different in some respects, and such differences were investigated where found, but the combination of the external measures of performance into a single scale maximised the available data set and enabled general influences to be identified.

5.4.2 Likert scales

The internal measures of performance and many other variables were 7 point Likert scales. These are ordinal measurements, which greatly limits scope for analysis, however custom and practice frequently disregard this limitation and it is usual to treat them as interval measures.

The main objections to this approach are the intervals between scale points are probably not constant between respondents, and the scales are probably not linear. Both of these effects are likely to degrade any relationships rather than exaggerate them so that the overall issue becomes one of balancing the greater power of the statistical methods available against the degradation of the data compared with a true interval measure. Since the nominal measure is used because a true interval measure is not available, this would appear to be an issue of little importance.

Tests for linearity were not applied to the scales and no attempt was made to compensate for non-linearity. The two reasons for not manipulating the scales in this way were:

> Any improvement in the quality of the measure achieved could well be spurious. Data quality cannot really be improved by post hoc manipulation.
>
> Any real relationships should be apparent in the untreated data. Any relationships which were only apparent in linearised data may well be artefacts of the linearisation.

5.4.3 Sequence and method

Multicollinearity is always a risk when investigating the influence of a number of independent variables, and it was certainly present in this data. The general approach adopted was to treat nominal and ratio variables separately and to identify significant influences among the former by ANOVA or t-test and to use regression for the latter.

Correction for the influence of nominal variables was made by adjusting the performance measure values of group members by the group mean. The most significant influence was corrected first and other influences then re-investigated. In the end sequence and method had very little effect upon the outcome with residuals correlating at better than .95.

Principal components analysis was used to investigate underlying structures in several areas. Again the application to ordinal data is strictly an abuse of the

method, although very common. The clear and logical component structures that emerged suggest that the method was applicable in this case.

More problematical was the analysis of the sets of questions on quality definition and management styles. These involved selecting a limited number of statements from a larger set. They represent a simplification of standard Likert scale questions and are seeking to measure underlying variables. While the data could be forced into principal components analysis, it is clearly an inappropriate abuse of the process. The only appropriate analytical technique for identifying these underlying variables is Cluster analysis. This particular technique is probably the most questionable of the multivariate techniques, with non-hierarchical methods being noted for their sensitivity to case order (Johnson, 1998). It was found that even hierarchical methods of clustering were sensitive to case order when cases were clustered, although consistent results were obtained with variable clustering. The general impression gained was that by manipulation of case order and clustering method almost any result could be obtained. This concern has been echoed by other authors. Ketchen and Shook (1996), for example, in a survey of the application of cluster analysis in strategic management say

> "We believe that cluster analysis can have a place in …the methodological toolbox…, but the methodology must be applied prudently to ensure the validity of insights that it provides. Further…. Cluster analysis should be used in combination with other methods….." (p455)

5.5 Validity and Reliability

Validity is commonly classified into four types:

- Construct validity which is concerned with the instrument's ability to measure what is intended
- Internal validity which is concerned with the control of causal relationship and contributing variables
- External validity which is concerned with consistency of sampling and constancy of conditions.
- Statistical validity which is concerned with the use of appropriate collection and analytical procedures.

Black (1999) identifies 15 common sources of invalidity and classifies them according to type as shown in table 5.1

	Source	**Example**	**Construct**	**Internal**	**External**	**Statist-ical**
1	No comparison across groups	Single group		x		
2	Time – events	Uncontrolled		x		
3	Time – maturation	Change in subject		x		
4	Selection – sample	Non-representative	x	x	x	x
5	Selection – regression	Classification of extremes	x	x	x	
6	Selection – stability	Loss over time		x	x	
7	Time effects on sampling	Delay in sampling process		x	x	
8	Independent variable effects	Poorly defined population		x	x	
9	Causality uncertain			x		x
10	Invalid experiment/treatment	Unrealistic			x	
11	Invalid measurement	Weak instrument	x			
12	Unreliable instrument	Unpredictable response		x		x
13	Instrument reacts with dependent variable	Subject learns from participation	x	x		
14	Instrument reacts with independent variable	Instrument influences environment	x		x	x
15	Other interactions					

Table 5.1 Sources of invalidity (after Black (1999))

Several of these (2, 3, 6) are time sensitive issues and simply not relevant to research which involves one instrument used on one occasion. Taking the others in order

1. The research is not actually experimental. No treatment is involved except that arising naturally. There is therefore no scope for a control group. The hypothesis stands or falls on sufficient variety being found within the population studied, but this particular source of invalidity is not relevant.

4. The population is well defined and clearly identifiable. The methodology, however, does not require a representative sample as the prime objective is not to generalise to the specific population. Nevertheless, comparison of the actual responses with published data for the whole sampling frame confirms representativeness.

5. The only identified extreme group (special schools) was eliminated from the analysis.

7. Sampling was carried out over a relatively short period, especially compared with the variables being measured which tend to have an annual cycle. This particular source of error was one reason for not administering a follow up to non-respondents.

8. See 4.

9. The model tested proposes a clear causal direction. This is self-evidently correct with the external measures of performance – examination performance is a result of school organisation, not vice versa. It is less certain with the internal measures of performance where there may be some feedback, but the correlation between the internal and external measures used suggests that this is not a major problem.

10. No experimental manipulation took place.

11. Several of the instruments used were relatively untested. The respondents perceptions of their own quality is certainly questionable, however the interviews suggested that realism and honesty could generally be expected. These measures did, to a degree, correlate with the external measure of performance, and, while the external and internal measures were not necessarily intended to measure the same thing, this correlation strongly suggests validity. In the case of quality definitions and management styles the

outcome was less certain. There is certainly a risk of invalidity in the measurement of quality definitions and management styles.

12. Unreliability in a single occasion measurement of one group, as in this case, is indicated by extreme variation in responses, inconsistency among responses and lack of correlation between variables purporting to measure similar things. This will only arise in the non-factual questions (always assuming that the respondents correctly answer factual questions). The reliability of the factual answers was tested by cross-referencing to published sources as mentioned above. Three measures of performance were used in the analysis, one external and two internal. While these were not intended to measure exactly the same thing, a degree of correlation was expected and was indeed found. In the main, answers lacked extreme values, suggesting good reliability, and the high levels of collinearity found among linked sets of questions again supports the assertion of good reliability.

13. This is again mainly a time based problem which does not really apply to a one-off measurement. The external dependent variable is quite independent of any possible instrument effects. It is possible that the instrument affected the reporting of internal measures of performance, by sensitising the respondent, but this is certainly not an undesirable effect.

14. and 15. It is difficult to see how this could be a risk.

Overall there is some risk that two of the measurement instruments might fail. Otherwise a high level of validity has been achieved.

Reliability of the scale based questions was tested using Cronbach's α (Black (1999)). The majority gave moderate reliability (see chapter 8).

5.4 Conclusions

All methodologies are flawed, however, given that the aim of the research is to produce a generalised model, mass data collection is obviously necessary. This implies the use of a questionnaire with statistical analysis. In order to minimise the dangers of this approach; the questionnaire was based upon relatively unstructured data collection methods which allow the real perceptions of the respondents to manifest.

Defending against the researcher's worldview colouring the interpretation of this data is more difficult, and an ever-present awareness of the risk is perhaps the best defence.

The questionnaire was demonstrated to have a high validity and reliability as well as satisfying the criteria of relevance and interest.

6. Preliminary Work. Application in Retail Banking

Research was carried out with the co-operation of TSB during 1995. The impetus came from work carried out by a member of the senior management of the bank as part of an MBA (Blanchard and Galloway, 1994) which led the author to develop the three dimensional model described previously.

Initial contact was with the Senior Service Manager and the Quality Co-ordinator for the West Central region, introductions being arranged by the Director of Quality. The West Central region was chosen by the bank on the grounds that they were well advanced in implementing quality awareness and that the Senior Service Manager was a quality champion. Out of this meeting came agreement to facilitate an interview programme with customers and customer service staff.

6.1 The Sample

No attempt was made to select a representative sample, since the numbers involved would not in any case be statistically significant. Three branches in the West Midlands were nominated; Coventry (Hertford Street), Lichfield and Tamworth, and branch managers were asked to identify two customers and two customer service staff at each branch. The criteria for selection of customers seemed to be availability, but the possibility that "good" customers were selected cannot be ruled out. This would not invalidate the findings, since these customers' experiences of the bank are still true.

Of the six customers, all fell into the "Empty Nester" lifestage classification (see glossary), four were female and two male; all had been with the bank for more than seven years, though not necessarily as their main bank. This is certainly not a representative sample, consisting mainly of the elderly/retired, and is perhaps an inevitable consequence of allowing the bank to select the sample. This group is most likely to have the time and inclination to participate. There were however few alternatives as neither the bank nor the researcher were willing to offer inducements to participate.

The six staff were more varied, three being male and three female, all but one were aged 20-29, while length of service varied from two to greater than ten years. Job titles were:

Clerk	1
Cashier	1
Savings and Investment Advisor	2
Customer Service Officer	1
Senior Customer Service Executive	1

Unstructured interviews were adopted as a means of allowing respondents to express their own views on service quality and its importance. Customers were asked to describe what service quality meant to them and what aspects were important. The intention was to prompt them to describe examples of good and bad service that they had experienced, though this was rarely necessary. Finally they were asked what would persuade them to change banks in the form of bad service by TSB or inducements by another bank.

Staff were asked what they believed customers felt were important aspects of service quality. This was followed by a question on what the bank could do to assist them in providing this.

The interview guidelines provided to TSB are shown in Appendix 1. It should be stressed, however, that this was not used as a script but rather as a guide to the areas that were expected to be covered. The interviews were carried out as conversations about aspects of concern or interest within the area of customer service in retail banking. No attempt was made to constrain or prompt the subject and questions were only asked to clarify issues or to move the conversation on when it had obviously stalled. The outcome is a narrative in which subjects have expressed their unguided opinions about service quality in their own language.

Interviews were carried out on bank premises during February to April 1995. Interviews lasted between 35 and 60 minutes. All interviews were recorded with the permission of the interviewee.

6.2 Analysis

Analysis has broadly followed the principles of attribution analysis (Harvey Turnquist and Agostinelli, in Antaki (1988)) and is based upon the use of keywords in context, and the identification of narrative subjects. The presumption behind both methods is that the frequency/time devoted to a particular issue reflects the importance of that issue to the subject.

Analysis revealed about 330 quality relevant keywords used on a total of 1500 occasions. The keywords and situations gave a reasonably good fit with the 3-Dimensional model as shown in section 6.2.2. Section 6.2.1 is intended to illustrate the allocation of situation to dimension.

A selection of keywords and their context are shown in Appendix 5.

6.2.1 Examples of the relevance of the three-dimensional model

The majority of customer statements were complimentary and focused upon the service delivery, as shown in the following examples. Each example is followed by an analysis in terms of the 3-Dimensional model.

> "they're sociable without being inefficient, but they also extremely professional here, extremely professional, each person knows his or her rank, they know exactly what they have to do at any given time and they also know in cases of problems they can call upon a senior member who is on duty so they are careful for - the younger ones are careful and the elders are cared for, and the elders by I mean over 45-50, the young ones I've talked to respect the elders, which isn't true in all banks"

An example of praise for the basic interpersonal skills and attitude of the staff - largely soft and process. More or less objective (inefficient, professional, knowledge, care) though sociability is perhaps more subjective.

> "I know everybody's human and everybody can make a mistake, you allow for that, but, em, I think its very important that they look after their customers and that they give the right advice, and as far as I'm concerned they've given me the advice I needed and helped me and explained everything thoroughly."

An outcome issue in that the customer was expecting to receive advice, but also including process issues in the way that advice was proffered. Largely soft in that

respect. Also largely objective. Note that the customer is explicitly rejecting the possibility (or need for) perfection.

> "anyway we saw this chap and he had us in here and he looked at all the money and he said "This is too much for me I'm only here for today I'm going to get you a proper financial advisor and get you fixed up with him". Anyway, I think the bank had found me one on Monday and said I could come down on Tuesday afternoon and see (named advisor). Now the difference was really chalk and cheese, this bank has given us nearly 30 hours of their time, a brilliant thing really."

Again outcome, and particularly successfully delivery, but fairly hard and objective. This fragment followed 300 or so words describing the bad experience in other banks in dealing with the problem of redundancy.

> "well, we've had quite a few banks because my husband was in business and went bankrupt, so you know, we've been through bankruptcy and we've been to other banks, and this bank I like because its so warm, friendly. You don't seem as if your going to be intimidated, you can come in with your problems, and they will sort them out for you, really, and you don't feel as if they are going to be judgmental. They are going to talk to you and really help you, you know, in every way they can, without sort of putting you down which is, when you're in trouble, you don't want this"

A high-risk customer (bankruptcy) comparing the service delivery (process) at this bank with unspecified previous experience. Again linking both the service (help) and the delivery (not intimidating, judgmental, putting down). Largely soft and fairly subjective (warm, friendly, intimidated).

> "and if they say they are going to ring you back, this bank, they don't leave you hanging on sitting in your kitchen waiting. Even if they can't, they will ring up and say "look I haven't sorted it out", and even if they haven't sorted the problem out, they will ring you back and so you're not sitting at home, which I have done in the past, biting your finger nails thinking you know, um, are they going to help out or not"

Service delivery (process), maintaining contact, with implications of error recovery (even if they haven't *sorted* the *problem* out, they will *ring you back).* Not, in this case, particularly stressing the soft side. Fairly objective

> "I'd paid some money over the counter and the company the money was for, a month later, sent me another statement saying I hadn't paid it. Now I had three or four statements like this and each time they were charging me and adding interest to it. Now the assistant manager here she - I made an appointment to see her and I told her I was fed up with what was going on, and they tried to trace the money, um, they couldn't. Then I gave them some more dates and then eventually they did trace it, er, this company had already had the money in their accounts, but the things that pleased me more

than anything was the fact that everyone of the counter staff trusted me, the assistant bank manager trusted me and in the end of the day they said "look if we can't find the money we'll pay it""

Error recovery, but more strongly the implication of trust as an important element of the service delivery. A typically mixed example in that Process and Outcome are about equally important as are hard (the transaction was traced) and soft (trust), but fairly objective.

"the main thing that's important to us, because we use our account an awful lot - we are on quite a tight budget, is that fact that you always, you know exactly the facilities are here, you can come in and put your card in the machine inside or outside, you can get statements, you can get mini statements, you can get balances, none of this having to order it, pay seven pounds, nine pounds or whatever the going rate is, or wait three days even, its instant and you know exactly, "

Outcome issues, but also the quality (range/speed/cost) of service delivery (process). Hard and objective.

"they do seem to have, try to have, a one to one relationship with the customers, which I think is important, um, I don't think you should feel, "oh dear I've got a letter from the bank what's happened now?" I think that people can come in here and know that they are important to the staff at that time, that their problems are being dealt with as quickly as possible"

Service delivery (process) and particularly the interpersonal aspects (soft), but fairly objective.

Staff generally showed a high commitment to customer service, but rather more concern with operations issues. The first example shows a strong, if rather mechanistic, awareness of interpersonal factors. It is process, soft and objective

"I have to know how to do the job that I'm doing at the time correctly i. e. cashiering, um, you know. I have to be, obviously, polite, um, its not just being polite, its body language, its the way you look, you know, in yourself, are you smartly dressed, are you not, have you shaven, have you not, you know, do you smell. I mean, customers do notice if you've been out on a Saturday night before and you've had a curry. You don't want to be breathing garlic over everybody"

A fairly zealous exposition of the same sort of attitude, but illustrating a tendency which many of the staff showed, of trying to adopt the customer's point of view.

"when I go somewhere else, that's what I expect. I expect someone to smile and help me and if I don't understand something, explain it properly, simply, not come out with all this complicated jargon. I go to other places and if they start talking technical I actually stop them, because I work in a bank

and we're not allowed to use jargon, so if I go somewhere else to another organisation and they start blinding me with science, I stop them,"

The next example starts off fairly hard, outcome and objective, but then links that to the importance of softer process side of actually understanding customer needs

"the customer basically wants something doing right, every time, at the first time of asking, that what they expect from a professional organisation, they don't make mistakes. Basically that's my perception of what a customer expects from the TSB bank. That implies ….. being able to understand …….. a lot of people will suddenly find they don't understand what their needs are, so their requests are quite, what they really do need, so we need to look at the need first and then relate that need to their actual requirements, to get what they want first time"

An example of concern for operations quality:

"we are human and we do make mistakes, um, hopefully, our quality checks we have in the branch and then in our head office, would pick up any mistakes or bad advice and then, basically, then have to go back to the customer and say, "well the advice I gave you, having been further checked we feel that they should really be doing this", and basically just apologise for the situation"

The next three examples show the extent to which customer care seemed to be imbued into the staff. All show a concern for the softer, process issues, but also show a rather deeper perception of customer perception/reaction. They are demonstrating an insight into the reasons for the designated behaviour rather than the rather mechanistic view in the first example.

"I think that to spend time just saying hello, a quick smile, and probably the customer doesn't notice that, they do notice when someone is miserable, don't acknowledge them,"

"you're there to help them at the end of the day, um, that's how it's got to come across. A lot of people are frightened to go into the bank, and perhaps apply for a loan, they don't know what they are going to say, or what they are going to do, um, you know you, you felt as if, as if someone would feel as if you're doing them a favour, and it shouldn't be like that,"

"don't promise to do something that you're not going to carry out, because from their end, the customers end, obviously they think, "I asked for them to send me something out, a brochure, an application form or whatever and its not been done". It's probably a minor thing to a member of staff, but it's a major thing to a customer"

However, not everyone reflected this fervent concern for customer care. The following quote illustrates a much more mechanistic concern for the harder, outcome related aspects of the service, with much more of a focus on operations quality.

> "if they walk into a branch and we've got one till open and massive queue, in the lunch hour, and the speedbank machine they feel isn't working as it should be. I think a lot of those things sort of come into play, um, from a clerical point of view as well, I suppose it's things like, you know, handling their account right in terms of direct debits and standing orders, amendments and cancellations, charges, you know, and if there is a problem, I guess, having it dealt with as quick and speedily as possible. From a customers point of view, I think that's probably the way that I would look at it."

One of the Savings and Investment Advisors, showing an insight into the relationship between customer care and sales targets, but also demonstrating the depth of the customer care ethos, at least in this region. A move from outcome towards process and hard towards soft.

> "its all too easy to, um, sell products to people without explaining, so that you meet your targets, don't worry about them, I've got my figures and that's all I'm bothered about. So, um, yes, its too easy to do that, so you just stop and think, um, take your time, explain things so .... I would say, even 12 months ago I didn't really think, OK customers, but it was mentioned, oh you should treat the customer well, and everyone said "oh yes", you just agree with it, and carry on, but the foremost was hit your targets, hit your targets, so and I do think customer service went out the window a bit there. It's just er, or another one is, is, you've seen a customer and perhaps you sold them x amount of products and there's not another thing you can do for them and they come in and they need some time to go over something. That's not going to get you anywhere, you're not going to get any recognition for it and so you hide. "I don't want to deal with that I want somebody who needs to buy a product as such". That (targets) was the priority yes, you just keep them out the way, but now, even like down to people who are, when I say a bad debt, I mean somebody whose perhaps taken on a loan and can't cope with it now, sit down and spend as much time with that person as the person who is going to buy a home insurance, a home and a mortgage"

And an explanation of some of this change in the form of the Sunshine Course. Delivered with an almost messianic zeal.

> "the classic is, um, this sunshine course, when, on for the day, everyone's agreeing that we must give good customer service and we know how to do that, being polite, um, taking time out, all the rest of it, um, and then come the end of the day, the first thing they are bother about if well I've stayed longer than my hours are so how much do I get paid? I think, well, have we learnt anything today, I thought we were putting ourselves out, you're going to give 110 percent, not this is my job and right I'm going home, I'm not paid to do anything else. Because that's the wrong attitude and if you thinking like that you've not learnt a thing so, um, and there are staff here that think like that. So, and I've worked in quite a few branches and there are quite a lot of staff there that, and its easy to agree with everything, "oh we only get paid to do this, you get paid all this money for that, that, that and

> that" and thinks that's a gripe that they must have with the bank and I think, if you don't like it then why are you here, just get out, you know, stop moaning or do something about it, so if your attitude is wrong when you start its not going to be right for the customer is it?"

Two examples of serious operations quality problems caused by the front shop/back shop structures adopted by the bank. The first gives a strong sense of frustration and almost injustice at being forced to deliver inferior service. The second, discussing the same problem, also demonstrates the proactive role of front line staff in seeking to minimise the impact of these failures on customers.

> "I think, mainly, my sort hindrance to helping customers, main interest is probably lack of staffing of the departments. It always seems that if I'm left with a query with, say, a home insurance claim, a motor insurance problem, it always seem to take another department longer to, um, get back to me, to give me a satisfactory - "somebody's on holiday, I can't deal with that you'll have to wait another 3 days" and the customer whose dealt with Jane doesn't know that I'm reliant on 5 other people in 4 different departments to sort this problem out. Yes its me, so I get very frustrated in the fact that I can't as a customer of home insurance, motor insurance, personal loan insurance, I can't get a satisfactory answer either, you know, I can't get it done quickly enough. I get aggravated because I know that Mrs Smith is waiting for me to ring her back. I'm waiting for Sam at ?? insurance to ring me back, "

> "especially when you get customers joking about the length of time it takes to get through. It's not very good, to be honest we shield the customers very well from a lot of these, we blame ourselves, we extend the timescales, so they don't expect to get an answer quickly. To sweep a lot of it under the carpet, so if they actually came and worked with us for a day, they would realise how frustrated we get, but they don't see that it's always neatly swept to one side"

6.2.2 Quantitative analysis

A quantitative analysis was carried out by associating keywords with their context and classifying them according to the 3-Dimensional model. A classification was also carried out in terms of Design, Conformance and Operational quality issues. This is obviously a subjective process but the concepts expressed fell clearly into three categories:

> The Service Offering (the service product). These were clearly issues of service design and outcome.

Service Delivery (the way in which the service is offered), which maps well onto conformance and operations quality. Much of this was related to staff attitude.

Corporate Issues (reputation) arose in a fairly small number of cases.

Which indicates that the degree of subjectivity is acceptable. The area where the *greatest degree of subjectivity arises is the attribution to the subjective/objective* dimension.

In arriving at the scores for the three dimensions, each relevant occurrence of each keyword was defined as being at either one end of the scale or the other (i.e. +1 for outcome, -1 for process). Where such an attribution was doubtful, the midpoint (0) was chosen. Any attempt at a more detailed scoring would simply have reflected the author's opinion without contributing any real improvement in accuracy. In general doubt only arose with the subjective/objective dimension.

To give an example, sociability is self-evidently process (while customers may value sociability, it is not the reason for visiting a bank) and soft, but to what extent may its quality be objectively judged? The teller asking the elderly customer how she is, may be good quality to that customer, but not necessarily to the other customers waiting in the queue.

Scoring the three quality types is more straightforward in that a keyword either applies to one or not. Design issues relate to the actual service provided (a loan, advice, bill payment etc); conformance issues relate to delivery while operations issues were taken to relate to errors and error recovery.

Tables 6.1 to 6.4 summarise the findings

	Percent	**Outcome**	**Hard**	**Objective**
Staff Attitude	32	-1.00	-1.00	0.13
Service Delivery	49	-0.58	0.53	0.61
Service Offering	14	1.00	0.94	0.74
Corporate	5	0.00	-0.20	0.00
Overall	100	-0.47	0.10	0.48

Table 6.1 Analysis of Customer Comments in terms of the 3-D model

	Percent	Design	Conformance	Operations
Staff Attitude	32	0.02	0.96	0.02
Service Delivery	49	0.07	0.61	0.32
Service Offering	14	1.00	0.00	0.00
Corporate	5	0.50	0.40	0.10
Overall	100	0.20	0.63	0.17

Table 6.2 Analysis of Customer Comments in terms of the 3 Quality Types

	Percent	Outcome	Hard	Objective
Staff Attitude	9	--1.00	-0.79	0.11
Service Delivery	69	--0.85	0.83	0.80
Service Offering	20	1.00	1.00	0.49
Corporate	2	--0.60	1.00	0.20
Overall	100	--0.56	0.72	0.67

Table 6.3 Analysis of Staff Comments in terms of the 3-D model

	Percent	Design	Conformance	Operations
Staff Attitude	9	0.00	1.00	0.00
Service Delivery	69	0.00	0.47	0.52
Service Offering	20	1.00	0.00	0.00
Corporate	2	0.00	1.00	0.00
Overall	100	0.20	0.43	0.33

Table 6.4 Analysis of Staff Comments in terms of the 3 Quality Types

The concerns expressed by both staff and customers show an excellent correspondence with the three types of quality; design, conformance, operations. Service Offering shows a perfect correspondence with Design quality, while the correspondence of Staff Attitude with Conformance quality and Service Delivery with Conformance and Operations qualities is almost as good. The fact that customer and staff concerns can be so readily classified according to the model strongly suggests that it does indeed underscore some basic issues in service quality. A noteworthy outcome is that while both staff and customers attach similar weights to Service Offering, the balance between Staff Attitude and Service Delivery (and

Conformance/Operations) differs significantly (at better than the .01 level) between staff and customers. Staff show a much greater concern for operational errors, while customers tend to presume that these will not occur. This difference is reflected in the greater overall importance of operations issues to staff. Again the difference between customer concerns and staff concerns is shown by the very high score for hard issues shown by staff, a reflection of their lower ranking of staff attitude.

6.3 Quality and Structure

Summarising the data from staff and customers it would appear that retail banking is predominantly a process based service, is intermediate between hard and soft but is fairly objective. Table 6.5 shows the overall scores.

	Outcome	**Hard**	**Objective**
Customers	-0.47	0.10	0.48
Staff	--0.56	0.72	0.67

Table 6.5 Overall location of retail banking within the 3-D model

It is important to stress that the staff perceptions were collected in a region noted for its quality awareness and that the customer perceptions were collected from a sample representative of only one sector of the bank's customer base.

The overall impression gained from customers was that they used the bank for its outcome, but that the process issues determined their quality perception. They expected the, fairly standardised, services to be delivered correctly most of the time and their experience supported this expectation. Outcome issues were no longer serious order winning criteria but had become entry criteria for this market segment. Since this reflects the staff perception as well it seems likely that this is a general reflection of the market.

Considering the operations issues identified in chapter 4, this would locate retail banking in the two highlighted cells in figure 6.6

		Subjective	**Objective**
Process	**Hard**	Automation Back Shop Less Predictable	**Automation** **Back Shop** **Predictable**
	Soft	Labour Front Shop Variable	**Labour** **Front Shop** **Variable**
Outcome	**Hard**	Automation Back Shop Less Predictable	Automation Back Shop Predictable
	Soft	Labour Front Shop Variable	Labour/ Automation Back Shop/ Front Shop Less Predictable

Figure 6.6 Relationship between the 3-D model and operations issues.

This differs from the prediction made in chapter 4 that banking was an outcome driven service, though it is otherwise in agreement. This can be explained by the fact that customers, in the main seemed to take conformance quality for granted – they expected the bank to deliver the service product. Likewise staff were concerned that the process should be satisfactory, again working on the assumption that the service product itself was sound. This may well be the characteristic of a mature market, but the methodology adopted does suffer from the common failing of the critical incident method in that it only raises the concerns which are relevant to the moment. Banks which fail to deliver the appropriate outcome would rapidly find that this was the main concern of their customers.

Certainly much of retail banking is automated and back shop. The generality of transactions are also fairly predictable. The customer perception would suggest rather more variability than that of the staff, and a higher front shop presence. It is

interesting to note that a key area of quality failure that concerned the staff was associated with back shop provision. In general, however there seems to be a good match between the characteristics of the service and the operation of the bank for these customers, and there is little doubt that these customers perceived their received service as of good quality.

Table 6.7 shows the skills and the motivational requirements which the 3 dimensional model predicts for good quality. Again the cells relevant to banking are highlighted.

		Subjective	**Objective**
Process	**Hard**	Responsiveness Technical Skill	**Technical Skill** **Mechanistic** **Extrinsic**
	Soft	Interpersonal Skills Responsiveness Technical Skill	**Interpersonal Skills** **Mechanistic** **Technical Skill** **Mixed**
Outcome	**Hard**	Responsiveness Technical Skill	Mechanistic
	Soft	Interpersonal Skills Responsiveness Technical Skill	Interpersonal Skills Mechanistic Technical Skill

Figure 6.7 Skills and motivation of service personnel.

Interviews with management generated a picture of a high level of technical training, and substantial training in customer care. Branches were structured hierarchically, but with some flexibility, and a general attempt to cultivate a team ethos. Both branches and individuals had targets related to sales and new accounts. Quality is measured through customer complaints, an annual survey of staff morale, and regional managers' appraisal on regular visits to branches. MORI carried out an ongoing survey of customer satisfaction outside specified branches

and a mystery shopper programme was in place. These led to quarterly reports for each cluster (on a branch basis) with an index of performance, >90 earning recognition and praise. Some managers also carried out their own mutual, unofficial, mystery customer programmes.

Banking is, of necessity, heavily controlled and standardised. One of the problems with the bank's quality improvement programme, for example, was that staff suggestions (a formal Opportunities for Improvement programme) were often rejected on the grounds of procedural standardisation.

The following quotations from staff interviews give a feel for the level of control, training, and skill obtaining. The first example suggests substantial technical training with self–development encouraged. It also indicates a degree of specialisation within the branch.

> "training has been geared to supplying, um, a service, which hopefully will satisfy the customer in their requirements, as both to information they may require on our products, or their accounts so.... we give them (the staff) a lot of training on specifics, but we also, there's a lot of, um, self teaching, um, experienced teachers, probably a lot having the technicality behind it. You know what a product actually is and also who does what within the branch. We all have separate jobs in a sense, I mean mine is cashiering"

The next example again shows a strong support of technical training and information, but also show a supportive ethos within the branch in that ignorance is seen as an opportunity rather than a fault.

> "the bank does give us very good support in our training requirements, so basically I've been on numerous courses, taken exams. They support our exams, promote, you know if its worthwhile taking, put a lot of money into it, so I'd say that is very good. I think the timescales are a little short, but they'll support the actual … but the actual information they provide is very thorough and very helpful, they just need to spread it out a bit. We have a very good group of people here, so I have a very good manager who is very useful …… so we seem to get a lot of, we can get a lot of help if we need it. ……Basically they would treat it as a learning process that basically there is a need for more knowledge and a bit more help and then if they can provide that they will, if they can't they will then suggest going somewhere else and speak to somebody else who might be able to provide that information, but they don't look at it as a fault, or that's a shortfall John might have, and he just needs to improve it here, a bit of that, and a bit of this, and he'll be OK, so it all helps really"

The next four quotations express, in various ways, the fairly fixed procedures in place. The third of these also demonstrates the hierarchical nature of the organisation, but implies support and co-operation rather than formality.

> "I've still got set procedures to follow"
>
> "basically in my job we basically have to follow strict guidelines, quality guidelines"
>
> "banks rules are often fixed cos we are monitored, um, I'm monitored as an individual by my supervisor ……and also by the assistant manager, the service manager and the branch manager. So I've got about half a dozen people taking a look at what I do personally, so on the whole I am, kind of, regulated. What I will do, though, if I've got a doubt in my mind about an account, I will like go to my supervisor and say like, "I've got a problem with this account and I'm not quite sure what to do with it""
>
> "I mean, er, it's costing the bank, they're paying me to do a job that is not necessarily necessary to do if people ran their accounts properly, but I can't blame a lot of customers because banking procedures, I mean, we are in a sense known as professionals within the admin, because you have to know an awful lot. You have to - basically the bank insists, the branch insists and … the governing body definitely insist, er, so we do - we are channelled down a particular route. We do have within that particular, lets say lines, we do have leeway within the rules, but on the whole a lot of the rules are very stringent."

A quotation illustrating again the hierarchical structure together with a high degree of flexibility and team spirit.

> "we all get on quite well and that in itself, we do try and work as a team and I think that helps our customer service. Reception is a prime example, really. When there is more than two or three waiting, somebody will always go out and give that person a hand and that, you know, we all try and chip in a little bit. It's not all left down to one person to do (Would you all be able to help out with any of the tasks?) Not all no, um, most of the service staff should I say can do each others job and help out in that respect, but um interviewing, no, I wouldn't be able to do that"

And finally a member of staff showing an appreciation of the need for formal targets, but recognising the importance of softer elements.

> "I mean personally, working for the bank, we have got objectives, if you like, or targets in terms of speedbank machine availability, general customer service standards, if you like, that we have got to try and come up to. But if you just achieved those figures, I wouldn't say that constitutes good service, because there's other things that you need to be doing as well, so you can't really measure...(For instance?). Well just sort of friendly greetings, hello, good morning, you know using peoples names and things and just generally passing the time of day with the customer"

The three dimensional model predicts that good quality service for a retail bank will be achieved with a mixture of technical and interpersonal skill, with the former taking precedence, fairly mechanistic processes (i.e. heavily scripted) and a control system depending primarily upon extrinsic motivation. The interview data suggests that this is precisely what the bank operates. The training and branch support emphasis is clearly upon technical skills and knowledge, but, as was mentioned earlier, the Sunshine Course was specifically about customer care (i.e. interpersonal skill). The degree to which interactions are mechanistic is perhaps less obvious, although several of the interviewee comments on the interpersonal skill aspects of quality certainly suggest this. However simple observation suggests that most interactions between customers and bank staff follow well-defined routes. The control system certainly includes a number of externally set targets on an individual and a group basis, and there are implications that financial reward is tied to this. There was little evidence that intrinsic motivation was a major factor in the formal structure of the bank, though there was certainly evidence that some, at least, of the staff interviewed gained real satisfaction from "helping" customers.

6.4 Conclusions

The three-dimensional model of service quality makes certain predictions about the interaction of the structure of an operation and the skill and control of its staff with the actual quality of the service delivered. It has been demonstrated that these predictions are sound in the case of retail banking although specifically for the small group of quality-aware branches studied and the particular market segment.

It has also been demonstrated that the three quality types (Design, Conformance and Operations quality) can make a useful contribution to the analysis of quality within a service.

7. Research into Schools - Design and Execution

The rationale behind the research design has already been discussed in chapter 5. This chapter will consider its detailed execution.

7.1 Interviews

Interviews were carried out during 1998 with a view to establishing four issues:

> Senior managers' perception of the nature of quality and its measurement.
>
> The importance of quality to senior managers within schools.
>
> Their perception of the factors affecting quality.
>
> Their perception of the organisation and control systems within the school. (This issue arises out of the hypothesis that control links to quality)

Five schools within Leicester were chosen for in-depth interviews with senior management. Two were primary and three secondary, all were medium to large, and all had Heads/Principals with a strong awareness of the importance of quality. All were state schools. It may be argued that this is not representative, however the object was to explore, with senior management, issues related to quality in education, its relevance, definition and the influences upon it. Interviews with informed and committed staff were expected to be far more informative and productive, and so it materialised. In all interviews were carried out with four principals and two vice-principals at the five schools. All interviews were carried out on school premises, and all were recorded. Appendix 6 gives a brief description of the schools.

Appendix 7 gives an example of the introductory letter (this varied according to the route of introduction. Introductions to two of the secondary schools came from the Principal of the school at which the author is a Governor. The heads of the two primary schools were known to the author indirectly through other teaching staff). This was accompanied by a short briefing paper (Appendix 8). Although the

interview length was specified as 30-45 minutes, generally at least an hour was actually taken. All those approached agreed to participate.

The interview was only lightly structured. The interview brief is shown in appendix 2, but it should be remembered that these were issues to be covered in discussion rather than questions to be asked. The object, as with the banking interviews, was to encourage the subject to explore their own ideas and perceptions within the field of interest.

7.2 Analysis of interviews

The main objective of the interviews was to inform the design of a questionnaire intended to gather data on a sufficient scale to permit quantitative analysis. The interviews were therefore analysed in terms of the categories mentioned above.

7.2.1 Perception of the nature of quality and its measurement.

The discussion of quality definition, in response to the question "What is your personal feeling about what quality means in the context of the school - how would you define it yourself?" suggested that many heads had not explicitly thought in these terms. The result was a wide range of ideas as shown in the following.

School 1

> "We're talking about a consistently high level of performance in terms of providing education for students"
>
> "Better than previous best"
>
> "we see that as maintaining at least a very high standard and hope to get higher than that"
>
> "if we deliver a high range of quality of teaching and quality of learning then that also comes to mean that we are doing our job in the best possible way and that's our goal, to do our job in the best possible way"

School 2

> "1st the quality of provision of what we're offering our students as clients and the parents as customers or consumers as well"
>
> "ethos and culture gives the quality that underpins what we are trying to do as an organisation"

" also the environment, quality in terms of way relationships and communication are managed"

School 3

"Quality impinges on everything we do and needs to be reflected in every aspect of our work"

"quality of teaching and of learning but if we extend that to the quality of relationships"

"quality is something that impinges on all of our work. It's a holistic concept really"

"it is just getting that bit more out of people, whether they're staff or students, than they think they're capable of"

School 4

"Well the quality of education the children are receiving, but our beliefs mean the all round development of individual child, not only academic skills but to build on skills from home, recognise achievements at home"

"to prepare them for the world outside - not just job of secondary schools, certain skills must start at very early age"

"to learn to be positive about ourselves, our rights as human beings. This should impact on everything done in the school"

"Quality is to improve what you offer and the way to do this is to reflect on what you are doing"

School 5

"A key indicator of quality is levels of satisfaction from customer, provider, OFSTED, governing body"

"our own quality assurance criteria for teaching and learning. Also for professional development"

"Deliver to the vision"

"Therefore we work with governors, parents, staff to define what we want from the key processes"

"Quality is about asking questions. School evaluation questions are why are you doing this? is it worthwhile? what difference is it going to make"

"Clear management philosophy which identifies what the quality is"

Almost all explicitly mention educational provision, but the majority also qualify this with comments upon all round development (ethos, relationships, recognise achievements at home). Most also consider quality to be all embracing (do our job in the best possible way, ethos and culture, holistic, should impact on everything done in the school). While most of the focus is upon the learning/development of the pupils, three schools explicitly mentioned other

constituencies – most specifically parents or the home. There are, however, clear differences of emphasis, School 4, for example, with a very high proportion of ethnic minority pupils and staff, shows a very high concern for the links with the home and carries the implicit subtext of valuing culture and developing an awareness or rights. School 5, whose head had been on a Crosby TQM course, actually did not define quality at all, except in the rather vague phrase "Deliver to the vision", but described it in terms of procedures.

Quality Measured

School 1

> "Academic performance is one, we actually track kids very hard. Which will give us a termly idea of progress, so it's not just a formal academic evaluation, there's lots of informal evaluation going on too. And it's measuring that against potential"
>
> "the important bits to measure are the value added"

School 2

> "Within the staff sometimes there are reservations about checking/monitoring quality. It is a new concept which staff feel comes from business"
>
> "Schools are no less accountable than businesses, perhaps even more so"

School 3

> "By the quality of learning I would be looking at things like the student response in lessons"
>
> "own programme of classroom observation so I have quite a strong sense myself"

School 4

> "Measures are in place - SATs are debatable. Our own measures include questionnaires to parents annually on different aspects of the school. We get 50-60% response"
>
> "Encourage parents - many mechanisms, for example monthly surgeries"
>
> "children's reports. But also children prepare own reports and reflect on their achievements"
>
> "Target setting - what is expected - how can we own it. We assess all year groups, identify areas of weakness, target children and lay down expectations. This is imposed but we also get children to set their own targets, both social and academic"

"governors' subgroups monitor specific aspects"

School 5

"Agenda being set in terms of quality assurance in relation to teaching and learning by OFSTED. The measurement of quality of teaching is based upon a framework - very judgmental - fulfils an accountability role. But the key indicator of quality is levels of satisfaction from customer, provider, OFSTED, and governing body."

"We are judged by data from inspection and outcomes of results."

It is perhaps surprising how little mention was made of external measures of performance, only two heads explicitly mentioned academic performance and both suggest that the measures available through SATs and GCSE results are of limited value. Only one (school 5) mentions OFSTED as a quality measure. The (vice-principal) of school 2 was more concerned about the reaction of staff to performance measurement, and the comments reflect some of Gaster's (1995) concerns about the imposition of private sector practice on the public sector.

7.2.2 The importance of quality to senior managers within schools.

Discussion of this issue was almost redundant, as all subjects declared quality to be of paramount importance.

School 1

"I think its actually extremely important to be honest, I think sometimes its overemphasised, because people when they look at quality tend to look at measurement of quality, and I think that's the bit I have problems with. I certainly think the ideal of quality, and quality management, is an exceptionally good ideal"

"it matters, if you like, to our parents, to our students, and the public that we meet with. The local industry or whatever"

School 2

"very important that the perception of the outside world is of good quality"

"there is an element of get that right and everything else follows"

"Our ethos is all about providing best quality education"

"It is an open market, we rely on parental perception to fill college."

School 3

> "Well its the most important thing really, the quality of what we're doing, its not worth doing something unless you try to achieve the best quality"
>
> "all public services need to be of the very highest possible quality because we have an obligation, a duty to provide"
>
> "you ought not to have schools unless they're the best schools"

School 4

> (More important than anything else?) "depends upon what you see as quality. If defined as a key issue with constant reflection - a cycle, it is essential. If just SATs scores then it is much lower down"

School 5

> "it is central to everything we do if we know how it is defined. Otherwise it is just froth"

A common theme throughout these is some expression of caution or reservation about the definition of quality. For instance the heads of schools 1 and 2 imply a conflict between market perceptions and "real" quality, while schools 4 and 5 are even more explicit about the proper definition. School 3 seemed to show a disregard for market forces with an intense commitment to quality as an ideal.

7.2.3 Their perception of the factors affecting quality

School 1

> "to get the direction and what we've worked hard to do is to make sure that staff agree with the direction we are going in, to fulfil our mission statement"
>
> "I think the mission definitely arose out of the staff,... I think on a theoretical point of view all our staff would agree on exactly where we are going and how we get there but when it actually comes down to laying the paving slabs, if you like, to walk along, then that's the bit when the debate becomes less of a consensus but its still a majority decision if you see what I mean. A majority feeling, you do get people then who need to be converged, if that's the right word."

School 2

> "Some people believe resourcing is a major influence, but you can offer quality within resource constraints. ....I am also tired of "of course we would like more money, more staff" I want to be in environment where we work positively not in a spiral of decline"

"A lot of influences on quality don't have cost implications i.e. Developing student self esteem; high morale amongst staff"

"Other constraints - some attitudes, some history, resistance to move with times, negative attitudes to being accountable. But staff tend to be very good, morale management is very important,....only a small pocket of staff with destructive attitudes and they can be managed"

School 3

"I think the standards that we set ourselves, the expectations that we have of ourselves and others"

"Clearly, at another level the work of teams is very important, so when you have key teams within the college, ... It's important that the leadership within those teams is such that those people have high expectations and however that they are able to translate those to their teams so that those teams themselves are aiming high"

"resource is an issue and it's not that helpful to leave it at that. What would you want the resource for? For instance we'd like to be able to spend more on staff training"

"There's obviously a major issue in my mind in terms of teacher pay. We were talking about appointments. There is a problem within schools because the best people are not necessarily going into teaching"

"The political climate within which we work is quite a factor, and the sort of signal the government may be sending to people is very important - things as little as, if its about morale, which is I think very important - getting the best out of people - things as little as the Prime Minister's recent remarks about inner city schools and sending children to somewhere other than the local school, comes into play."

School 5

"some legislation is not clearly thought through, when it comes into school, we look at it and decide are we going to bat that off, are there resources attached to it that we need -are we going to play the game"

"Increasingly difficult when there are so many initiatives coming in."

"We have very detailed aims and vision developed with staff, shared with parents. Clear indices in teaching and learning so teachers know by what they are being judged. And the same with professional development. These are sometimes different from OFSTED ones"

Here the dominant theme is teamwork and staff commitment, mentioned by all the secondary heads. This carries with it the implication, more or less explicit, of an acceptance of high standards and the need to improve (the mission, high expectations). Interestingly the head of school 4 had nothing to say on the factors

affecting quality, but discussed instead the measures in place to monitor and improve quality, however target setting and high expectations were again mentioned. The head of school 5 implied that external influences and rapid change were not helpful, and also suggested that the aims of government and OFSTED were not necessarily correct. (Interestingly this Head left shortly after to join OFSTED). Only the head of school 3 explicitly mentions resource constraints as a problem, and that mainly as a national problem influencing teacher recruitment. Head 3 was also the only one to mention explicitly the negative impact of much government activity, although there are echoes of agreement with head 5.

A linked question was directed at determining how the heads saw their role "What contribution do you make personally?"

School 1

> "that is really fundamental in terms of the leadership"
>
> "the thrust the direction comes from me and the pace comes from me"
>
> "the leadership style I'm trying to get in here is that other people…… see themselves as doing it. What I really want to do is create leaders at all levels within the school. So that they see that the spark or the pace might come from themselves"

School 2

As the interview here was with a vice-principal, the question was omitted.

School 3

> "I need to be aware that everything I say is important really"
>
> "emphasis in terms of leading schools is on leadership as much as on management"
>
> "if I am not inspiring people, but if I am encouraging them"
>
> "setting up the systems and structures to make that happen is quite an important part of my role"

School 4

> "role is keeping things alive - motivating, encouraging, being optimistic and letting it rub off onto staff. Try to be still excited"
>
> "Recognise wonderful work that staff contribute to the school"

School 5

> "leadership and strategic direction critical, and personal vision"

> "I developed structures. A fundamental transformation in school (referring to the situation as he inherited it) now participatory…..atmosphere, culture, results all improved. Interpersonal and communication skills essential"

Not surprisingly, all mention leadership, all imply motivation and most imply example as well. Only schools 3 and 5 mention systems and structures explicitly.

7.2.4 Their perception of the organisation and controls systems within the school.

Management role

When asked to discuss the role of management, the general tenor was of a participatory, consensus driven ethos.

> "So when we do make a decision on an issue, then we do understand that it has the support of the majority of the staff within that framework…….as a manager I would say we respond to how staff think it should be done" (School 1)
>
> "I leave my door open - any person can come and talk –I need to be accessible - I walk round the school at least once a day and visit every class" (School 4)
>
> "it is very much a participatory informal communication network. People take ownership and responsibility of what goes on" (School 5)

Structure of management

All highlighted the team basis of the structure,

> "Team based structures and philosophy encourages independence, reflection, rewards teams as opposed to individuals, not based on arbitrary numerical targets, but people set own goals" (School 5)

but actual divisions varied. Divisions were variously based upon the obvious criteria of year, key stages, or faculty (subject area) as well as cross-divisional activities such as pastoral care, home/school communications. Senior management responsibilities included target setting and appraisal.

The Senior Management Team

All schools had a senior management team which shared responsibility for the management of the school with the head. The actual composition was quite varied, and variable. It was interesting that two schools counted members of the

governing body as part of the senior management team. This is perhaps not surprising when it is remembered that it is the governing body that is responsibly for the school, but fairly remarkable given that governors are unpaid volunteers.

> "We meet once a week - the principal and two vice-principals and sometimes the three assistant vice-principals" (School 2)
>
> "The senior management is myself, my deputy, the key stage co-ordinators and chair of governors" (School 4)
>
> "Day to day responsibility rest with myself, my deputy and the chair. There is a Team leader for each year" (School 5)
>
> "I work quite closely with the chair, and vice chair of governors. ……. I think the responsibilities for leadership and management should be distributed so I have created an extended senior management team. Not only does that include 2 vice-principals, but 4 people who's job titles I've not quite decided on - we call them improvement team co-ordinators" (School 3)

The nature and frequency of meetings

It is probable that the nature of meetings within the school reflects upon the management style, and in particular their formality and inclusiveness. Heads were specifically asked about the degree of openness of meetings. Schools tended to discriminate between briefings, designed to give information, and meetings at which participation was expected. All but one of the schools held briefings with all staff at least weekly. In addition briefings might be held with smaller groups (i.e. year teams). The exception was school 4, which held weekly meetings with all staff. The case against full staff meetings was put strongly by school 2

> "…no full staff meetings, they are too impersonal, and can lead to floor hogging. The Head presents to staff at the beginning of term outlining vision, culture, ethos"

Formality varied with some being far more formal than others.

> "At a guess I'd say 65/35 in favour of the informal" (School 1)
>
> "all meetings have agendas and records" (School 4)
>
> "Fairly informal – we operate well as a team. Meetings are open and honest. But with an agenda, a rotating chair and minutes" (School 2, speaking of senior management team)
>
> "We have a formal meeting programme, transparent and written" (School 5)
>
> "The SM team which would be myself just with the vps meets formally twice a week. No they're not minuted" (School 3)

In terms of the openness of meetings there was again a degree of variation. School 1 professed to be open and claimed some success.

> "it was a departmental meeting so really you're looking for 8 people to be there, there were 21"

While school 4 maintained that all meetings were open to all staff except when dealing with sensitive issues.

The others generally felt that meetings would only be attended by those directly involved.

> "People wouldn't think it the norm to attend a meeting they don't normally attend" (School 3)

Monitoring and Control of Staff

All schools had formal systems, but differed in the emphasis put on different monitoring methods, and the degree of involvement. All tied the question into staff development and appraisal.

While no school suggested that staff were not involved in setting performance targets, there was some variation apparent in the degree to which this was a matter for individual discretion. School 1 implied that targets must be acceptable to management, while school 2 suggested that targets arose directly out of departmental development plans. School 5 said that staff set their own targets but then went on to say:

> "We have clear indices in teaching and learning so teachers know by what they are being judged. The same with professional development. We have a formal monitoring and evaluation framework. I visit classrooms, and give formal debriefs…. the system is transparent and clear"

which suggests that the targets are rather constrained by expectations.

All schools claimed that classroom observation was an important element. Done by the head in the primary schools but supported by other senior managers in the secondary schools.

Two schools specifically mentioned feedback from parents, and one mentioned checking of homework files and exercise books.

Interestingly none specifically mentioned examination performance.

7.3 Questionnaire Development

Analysis of the interviews led to the development of the questionnaire.

The objective was to establish measures of quality and to establish values for factors likely to influence quality.

The interviews had suggested that the sort of information required would generally be very accessible to heads, and it was a matter of deliberate policy in the design of the questionnaire to minimise any obstacles to completion. The interviews also suggested that heads would have little difficulty in dealing with Likert scales, so these were used when appropriate, though care was taken to avoid a seamless tapestry of identical looking questions.

The questionnaire was broken into three sections:

Simple factual background. This covered most of the external factors and gave an undemanding lead in to the questionnaire. There was a risk that this might have been seen as trivial and boring, but it was expected (rightly) that the topic would be of sufficient interest to ensure that respondents got beyond page 1.

Quality. A set of questions on definition, importance, and measurement. Most of these used Likert scales, but the sequence was broken by question 13, which asked respondents to select from among a range of quality definitions.

School organisation. This sought to determine the nature and function of the senior management team, issues of delegation and discretion, and finally a question designed to establish a simple measure of management style. A mixture of factual questions, and Likert scale questions was used, with the final question again requiring the selection from a range of management characteristics.

The sequence of the questions in the quality section was designed to focus attention, with the first question directing attention on who quality was for. This led in to what it was, how it was monitored and finally the question of actual achievement.

7.2.1 Measures of quality

Three measures of quality were identified during the interviews:

The head's own perception.

All the interviewees were asked to estimate the performance of their schools and none had any difficulty in doing so. They tended to do so in both absolute and relative terms i.e. the head might claim that while they were not doing particularly well compared with national averages, they were doing rather better than other comparable schools. There is a recognition in this that many influences on quality are outside the control of the school, There is also an implicit recognition that published data counts even if it doesn't correspond with the head's own perception of quality. The general conclusion drawn from the interviews was that heads were capable of making an honest estimate of the quality of their schools, and that this estimate had the advantage of reflecting the heads own perception of quality.

Published examination performance.

This was not seen as a particularly dominant measure of quality by the heads, but there is no doubt that it is seen as important by government and the press and therefore by a substantial proportion of the population in general. Performance tables of GCSE and SATs scores are published annually by the Department for Education and Employment (DFEE, (1)) and form a readily accessible and more or less objective measure of an important aspect of school performance. A disadvantage of this particular measure is that Infant schools did not produce published results at this time

OFSTED Inspection Reports

All schools are subject to periodic inspection by teams of OFSTED approved inspectors, and the inspections certainly cover issues which can be defined as relevant to quality, including teaching and learning, pastoral care, social development, management, resources, etc. The published reports are readily available. Unfortunately they are bulky, and even though each contains a summary, these are not in any standardised format. It was decided that the analysis of 200 or so OFSTED reports was simply beyond the scope of this project.

In summary, of the three measures of quality identified, the head's opinion was readily available, but subjective, exam and test scores were readily available and objective, but partial and only for some schools, and OFSTED reports were readily available but prohibitively expensive in resource terms.

It was decided that the head's opinion should be canvassed in the questionnaire and this should be correlated with the published exam/test scores where available.

Three questions were used (see the questionnaire, Appendix 3), one seeking an absolute measure of performance, one a measure relative to similar schools (this led to the comment from one respondent that "there are no similar schools"), and one asking for the scope for improvement.

7.2.2 External Factors likely to influence quality.

External factors are those over which the school has little influence and they are, essentially, irrelevant to this research. However, if the true influence of internal factors is to be investigated, external factors must be identified and compensated for.

The identification of potential external factors is derived from:

> general awareness of the educational scene, and involvement with schools over a long period
>
> interviews with headteachers carried out specifically as part of this research.
>
> discussions with both junior and senior staff in schools as part of the researcher's role as a school governor.

Size (question 1) of school was deemed important because of its likely influence on structure and range of activities/facilities. There are some general beliefs that small schools are more personal and therefore better, but there is also some evidence that small schools do less well.

Age (question 2) range is an important measure of level of activity and relevance of external performance measures.

Selectivity and Gender (questions 3 and 4). Selective schools would be expected to achieve a better academic performance. Single sex schools may or may not

perform differently. There is a belief that girls do better in a single sex environment.

Type (question 5) of school. The DFEE (2) defines five types of school.

> Private. Fee paying school outside the state sector.
>
> Grant maintained. Governing body responsible for admissions.
>
> State. State school funded through the local authority.
>
> Voluntary aided. Maintained by LEA, with a (generally religious) foundation which appoints most of the governing body. Governing body generally responsible for admissions.
>
> Special. For pupils with learning difficulties, emotional and behavioural difficulties, physical or sensory disabilities.

The source and degree of funding might be expected to influence quality. There was no intention to seek to include special schools, so the category was used to ensure that none were included.

Location. (question 6) Inner city and suburban council locations are usually associated with deprivation. Other locations are more questionable. Some rural areas are certainly deprived, while others are self-evidently not. Suburban private housing is usually not seen as deprived. Since pupils frequently travel quite long distances the catchment of the school was used rather than its actually physical location.

Pupils receiving **free school meals** (question 9). The main measure of deprivation, and widely accepted by teachers as having a major influence on performance. A measure that was considered, but finally rejected as too subjective, arose out of the observation of one senior member of staff that the real measure should be of those children whose parents did not even have the ability to claim free school meals.

Pupils from homes whose **first language** (question 10) is not English. It might be expected that high levels of non-native English speakers could damage a school's performance both by reducing the base line of performance and diverting resources.

Length of service (question 11) of the head. A potential influence. Certainly recent heads might have had little time to affect the school.

7.2.3 Internal factors likely to influence quality.

These factors cover various areas of perception, structure and procedure and are considered in the sequence in which they appear in the questionnaire.

Number of staff (questions 7 and 8). A hybrid issue in that the overall level is set by the external constraint of funding, but schools do have discretion over the balance of expenditure within various categories. It was hoped that this might give some measure of the way in which the school distributed its resources, for example between academic and support staff, and by implication between staff and other resources. Unfortunately it is not a simple measure as many academic staff and most support staff are not full time. It was felt that asking respondents to give staff as full time equivalents would be too onerous, so the quality of the data here is questionable.

Stakeholders (question 12) and the importance that the school attaches to them. The list was developed out of personal perception and discussions with school staff. It is not comprehensive, but the response to the category "other" in the survey suggests that all important stakeholders were included.

Definitions of quality (question 13). These represent a good range of the definitions presented in the interviews and show various aspects from output to process and from specific to general. The rationale behind the approach is discussed further with reference to management styles.

Importance (question 14) of quality. Little variation was expected in this but it was felt necessary to give respondents the opportunity to differ.

Procedures for monitoring (question 15) quality. All the procedures specified emerged from the interviews and they represent all significant approaches mentioned.

School performance (questions 16 to 19). Four linked questions asking about absolute and relative performance and the potential for and importance of improvement.

7.2.4 The organisation of the school.

Senior management team (questions 20 to 26). These are designed to determine how the senior management team operates, with questions on size, structure, role and frequency and style of meeting.

Discretion of staff (question 27). A set of linked Likert based questions on the degree of discretion individual staff are given on individual tasks (schemes of work, teaching style), more global aspects (priorities for subject and for school), and monitoring and improvement (professional development, targets). These questions particularly tie in with general issues of control and motivation, but again, all the topic areas stem from the interviews.

Team based (question 28). This question was designed to determine the extent to which the head believed the school operation was team based, but might also act as a confirmatory question for question 27.

Management style (question 29). While the answers to questions 20 to 28 were expected to give some insight into the style of the head, it was felt that something more specifically designed to identify style would be useful. Unfortunately the majority of instruments designed to measure management styles are far too cumbersome for use as a supplement to the questionnaire. Eight pages are certainly enough and any more would be expected to try the patience of the respondents to the point where additional value would be more than offset by diminished returns. The question actually used had the great merit of being compact and simple, if not as well validated as more established instruments. The instrument was developed by Brewster, Lundmark and Holden (1993) and was a simplification of that developed and tested by Ekvall and Arvonen (1991). Ekvall and Arvonen developed a three-dimensional model of management style while applying the established two dimensional model of 'production-centred' and 'employee-centred'. Their research led them to add the further dimension of 'change-centred'. This certainly seemed appropriate to schools in the UK, which have been subject to continuous change for the past ten years or more. The advantage of the instrument is its relative brevity. The disadvantage in the original form is that it introduces yet another page of Likert scales. The variation used by Brewster, Lundmark and Holden replaces the Likert scales with a simple selection

of the seven most important characteristics from the list. This has a number of advantages

It is necessary to read the full list before making a selection.

It is different and therefore likely to stimulate flagging interest

It is resistant to questionnaire fatigue – the temptation to simply tick all the 5s.

It does not demand the intellectual effort that outright ranking would require.

Against this must be set the disadvantages

It does not allow for any degrees of importance. It is purely binary.

It is a relatively long list so primacy and recency effects might arise.

The evidence from the distribution of answers indicated that order effects were unlikely to have arisen.

7.4 Administration

The questionnaire was piloted first with the author's supervisors and then with the interviewees. All were invited to comment on a supplied feedback sheet. Five interviewees completed it without difficulty and the only comment was the suggestion that a space for "Own Definition" should be inserted into the quality definitions section. This was done, but in the event no respondents actually made use of the facility. One head did not actually reply, however it was understood the person in question had been ill and it was felt expedient not to pursue a response.

The City and County Education Authorities were approached for support in return for a summary report. The City responded enthusiastically, allowing their support to be highlighted in the covering letter (appendix 3) and sent their own letter to all schools urging their co-operation. The County referred the matter to a committee who eventually replied in the negative on the grounds that schools were overworked and the questionnaire itself was far too subjective.

The questionnaire with the covering letter and a stamped addressed envelope for its return was mailed to all schools during April and May 1999. The stamped addressed return envelope was used in preference to a business reply label on the basis that

this is generally believed to give a higher response rate. The Leicestershire telephone directory was used as a readily accessible sampling frame (the city authority offered to undertake the distribution to city schools, but in the absence of co-operation from the county it was felt preferable to treat all potential respondents alike. Even if the county had co-operated, independent schools would have required a separate approach). In all 363 questionnaires were mailed.

7.5 Response

A response rate of 48.2% (175 replies) was achieved. This included two who replied refusing to participate, one Institution that did not fit any of the classifications, and one returned "gone away". Against the non-respondents can be set the two schools who telephoned to say they were actually outside the specified catchment area (an unanticipated side effect of using the telephone directory), but could they reply anyway, because they thought the questionnaire very interesting.

The returned questionnaires were in the main complete and comprehensible. It was apparent that a few respondents had reversed the scales on the first scale based question, realised their mistake and made corrections. A number failed to answer any questions on pages two and three, presumably turning two pages at once. It is difficult to see how these errors could have been avoided.

One respondent failed to understand the scaled questions and entered numbers in many of the boxes. That response proved unusable. Another appeared to have reversed all the scales, but in the absence of firm evidence that this was not an example of extreme pessimism, the response was rejected. In total 166 responses were usable.

A follow up mailing was not carried out for the following reasons;

> The response was very good for a postal questionnaire and was deemed adequate.
>
> Proximity to the end of the academic year meant that the success rate of an immediate follow up was likely to be very low, this being a particularly busy time for most heads. The alternative of waiting until

the Autumn term was considered but rejected on the grounds that the response rate would again be low unless the follow up was delayed until late October by which time the situation might well be different enough to undermine comparability (at least one school in the survey increased from 750 to 1100 pupils over that time).

The methodology adopted demands number and variety, but not representativeness.

The responses were tested for bias by comparing the 1998 SATs and GCSE scores for those schools which responded against those which did not. A simple two sample equal variance t-test was carried out on the mean GCSE points score for secondary schools, and the mean SATs score for primary schools, treating as two samples the schools that did respond and those that did not.

The results are shown in table 7.1, and clearly indicate no significant differences in either performance or in the ratio of respondents to non-respondents between primary and secondary schools.

	Primary		Secondary	
	Respond	Not Respond	Respond	Not Respond
Mean	0.653	0.64	38.61	35.9
Variance	0.0287	0.03	140.8	144
N	78	69	21	23
t	0.462		0.765	
Significance (two tail)	0.645		0.449	

Table 7.1 Exam/test performance of responding and non-responding schools

7.6 Conclusion

A high level of interest and co-operation confirmed the importance of the topic to the chosen population. The resulting questionnaire gained a high and consistent response rate with no evidence of bias in the response.

The questions asked were largely based upon the issues raised in interview and the specific answers indicated that there were no significant omissions within the questions used.

A high validity and reliability were found (see chapter 5) so overall a sound and robust application of the methodology can be claimed.

8. Analysis

This chapter presents the analysis of the questionnaire data, together with the SATs and GCSE data collected from the DFEE website. Basic descriptive data is presented first, this is followed by the procedure for eliminating external causes of variation in performance, and finally the influence of internal factors on the residual performance is considered.

Analysis was carried using SPSS for Windows, release 7.5.1.

8.1 Descriptive Statistics

8.1.1 The Schools

Size

The mean size was 407 with a standard deviation of 337. The moderate skewness of 1.8 is reflected in figure 8.1, which shows the majority of schools having between 50 and 750 pupils.

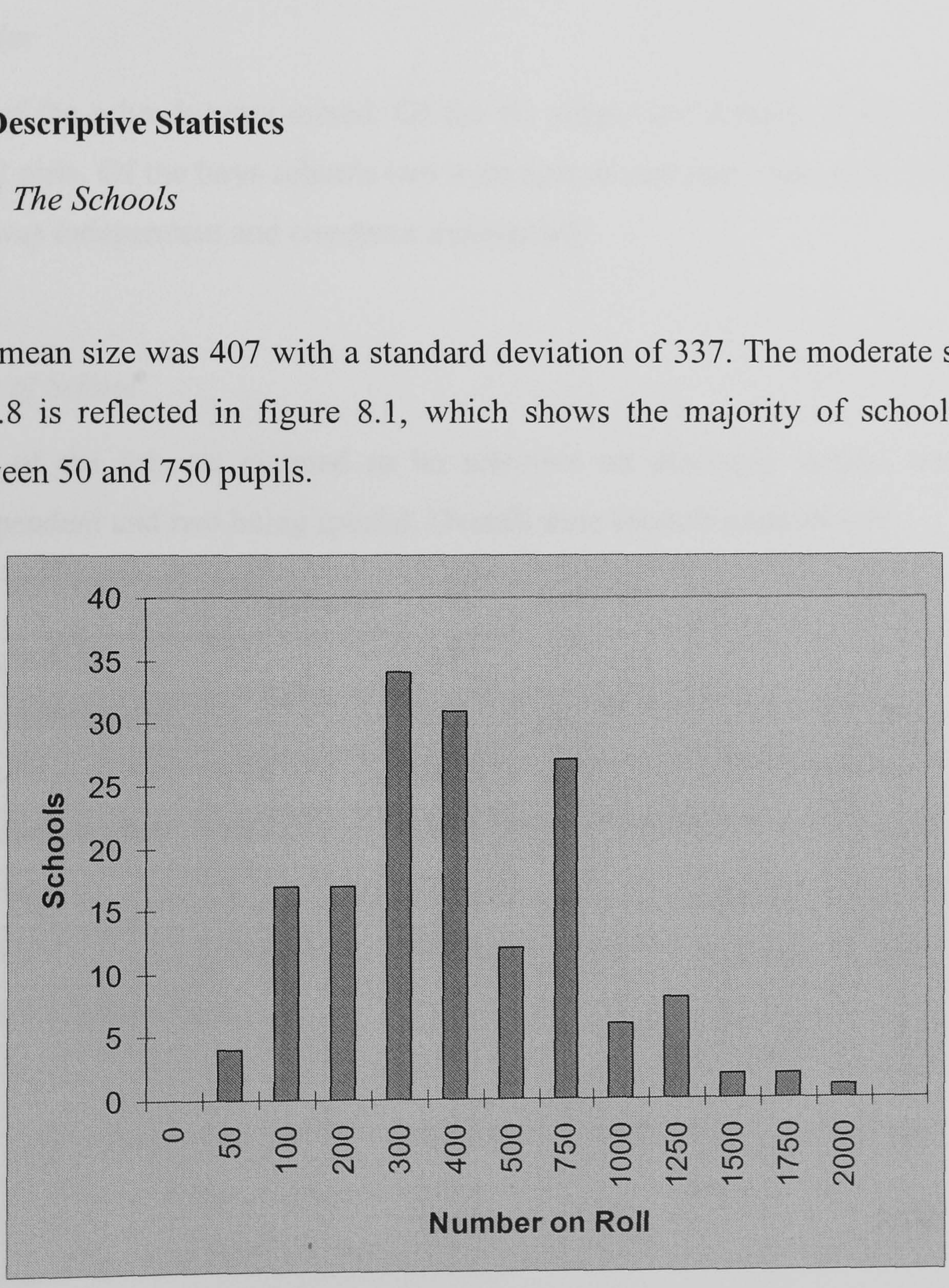

Figure 8.1 Size of schools

Age

The age data per se is not very informative, and a large variety of replies were received. Essentially there are 10 types of school; Infant (up to about 7), Junior (7-11), Primary (up to 11), Secondary (11 up to 16 or 18), Lower (up to 10) Middle (10 to 14), Upper (14 to 16 or 18). The majority of schools are primary.

If the division is simply made on the basis of the age 10/11 split then 111 schools are lower and 39 are upper with the remaining 16 crossing this boundary.

Gender

160 of the schools were mixed. Of the six single sex schools, 4 were boys only and 2 girls. Of the boys schools two were special and two were state. Of the girls, one was independent and one grant maintained.

Type of School

Five of the schools claimed to be selective on academic ability, three being independent and two being special. Overall state schools predominate.

	Frequency	**%**
Independent	7	4.2
Grant Maintained	3	1.8
State	134	80.7
Voluntary Aided	18	10.8
Special	4	2.4
Total	166	100

Table 8.1 School type

Catchment

	Frequency	**%**
Inner City	28	17.7
Suburban Council	20	12.7
Rural	39	24.7
Suburban Private	29	18.4
Other	9	5.7
Mixed	33	20.9
Total	158	100

Table 8.2 Catchment

The data show a fairly uniform mix.

Staff

The staffing figures are at best rough guidelines. It was felt that to demand full time equivalent (FTE) staff numbers would be too onerous, and that the inaccuracies introduced by using raw figures would have to be tolerated. Some respondents did, however specify that the figure given was FTE.

The broad distribution is shown in table 8.3 and figures 8.2 and 8.3.

	Minimum	**Maximum**	**Mean**	**Std. Deviation**
Academic Staff	2.10	120.00	22.60	23.00
Support Staff	1.00	160.00	11.80	17.61
Length of Service	0.50	30.00	6.61	5.65

Table 8.3 Staff numbers and length of service of head

There is a good correlation (0.837) between roll and academic staff numbers, suggesting as expected that the majority are in fact full time. The correlation (0.43) is much poorer with support staff, reflecting the more mixed pattern of work. The two schools with highest numbers of support workers (100 and 160 respectively) have relatively modest pupil numbers (510 and 660) and are otherwise unexceptional. If these are removed the correlation between support staff and pupil numbers improves to 0.64.

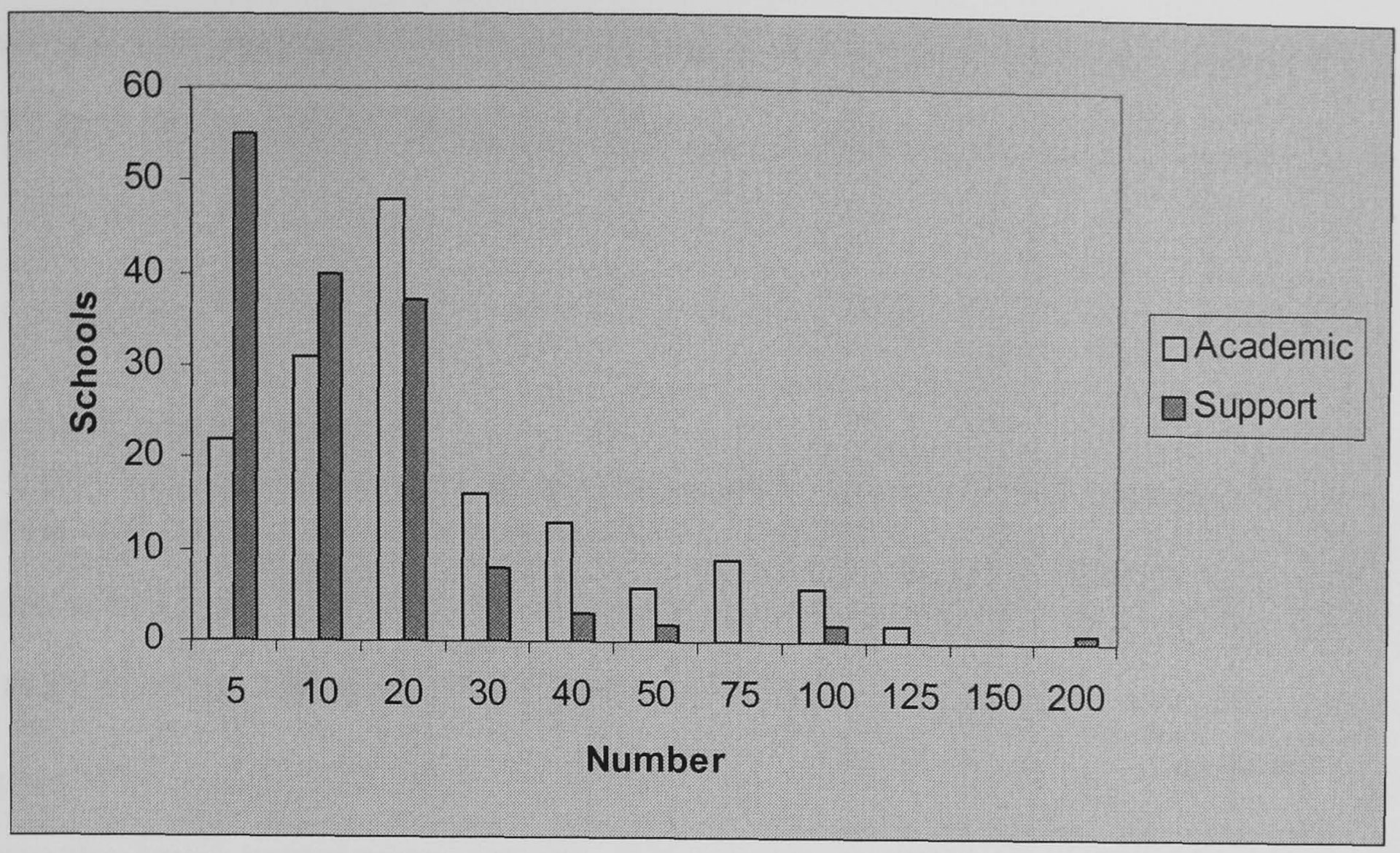

Figure 8.2 Staff numbers

Length of Service of Head

As the graph shows, a wide variation was found (0 to 30 years).

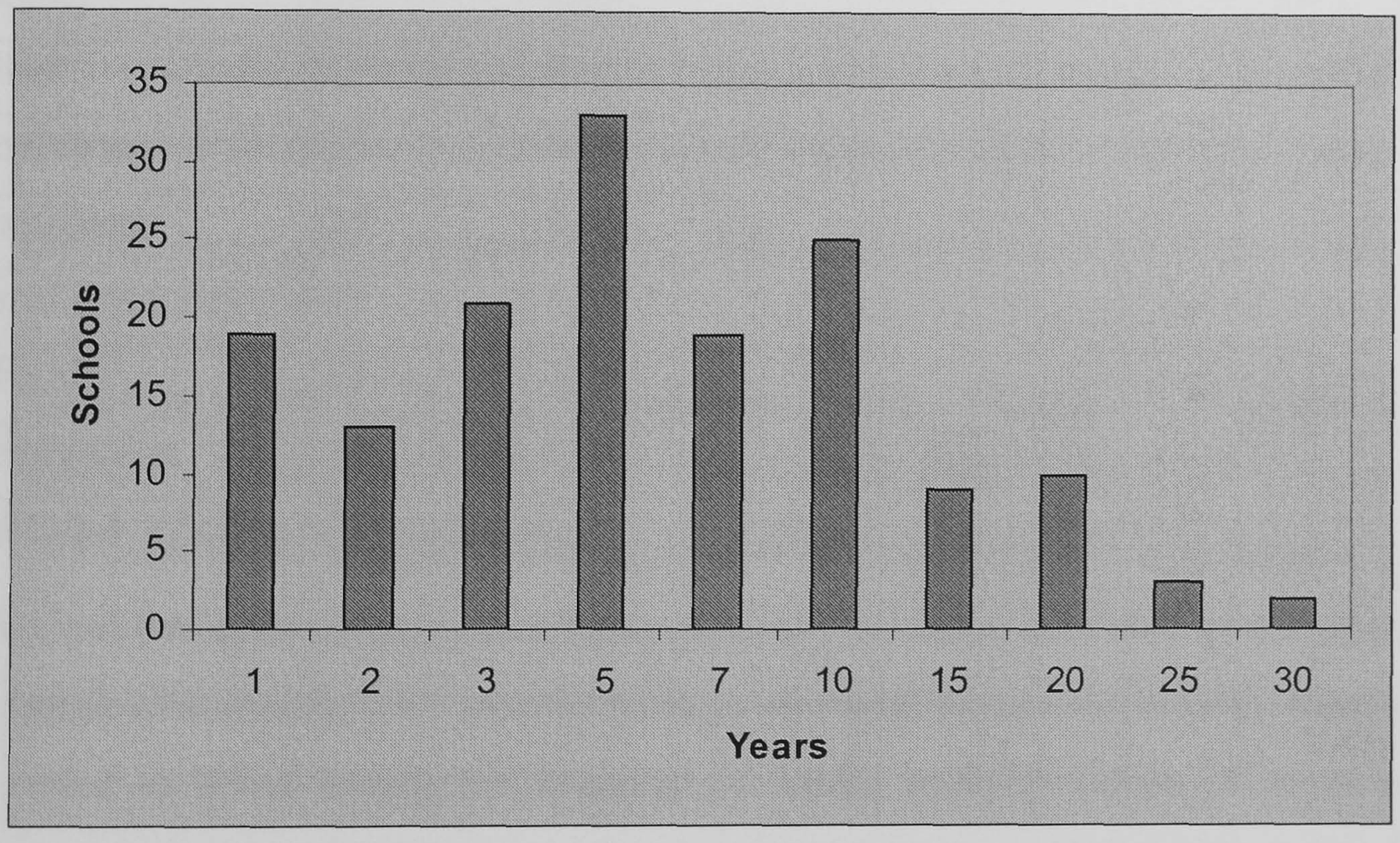

Figure 8.3 Length of service of head

Free School Meals/ First language

Overall 13.2% of pupils were reported as having free school meals and 14.1% as being from homes where English is not the first language. The former varied from 0 to 75% and the latter form 0 to 100%.

Five schools reported 50% or more free school meals and 16 reported 50% or more non-native English speaking homes.

8.1.2 Quality

Quality Constituencies

Pupils and parents were seen as the most important by the majority with a mean score of 6.93 and 6.55 (out of 7) respectively. School governors were a clear third in most schools with the others being much lower.

Those who mentioned other constituencies ranked them fairly highly. In most cases the local community was the main issue, or staff. Several of the voluntary aided schools were church schools and mentioned the church in this context.

	Number	**Mean Score**
Pupils	159	6.93
Parents	159	6.55
Other	21	6.05
Governors	155	5.95
Employers	125	4.81
Local Authority	153	4.79
OFSTED	156	4.72
Government	153	4.16

Table 8.4 Quality constituencies

Principal components analysis on this data set yielded a convincing three factor model shown in table 8.5. Varimax rotation was used to maximise factor loadings. In order to avoid losing the majority of cases, missing values in other and employer were replaced by the neutral value of 4. It could be argued that the unimportant value of 1 is more appropriate, but in fact this made little difference to the solution. The three factor model was chosen against a possible five factor model because the residual variance explained by factors 4, 5, and 6 was small and similar (as indicated by the scree plot in figure 8.4). The five factor model does separate out the less important constituencies of Employers, Governors and Others, however.

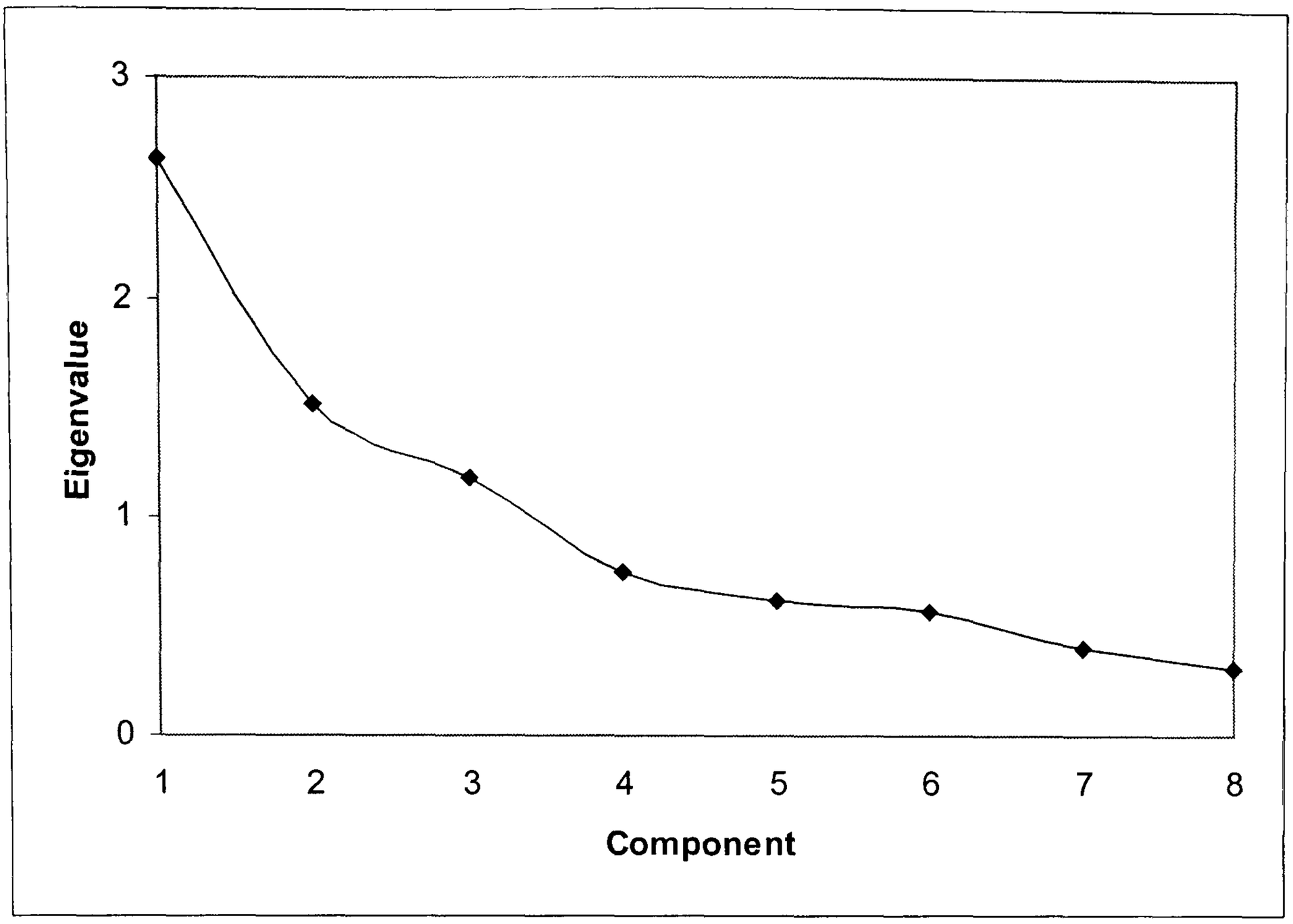

Figure 8.4 Scree Plot of Quality Constituencies Components

	Component		
Statistics	**1**	**2**	**3**
Eigen Value	2.61	1.51	1.19
% Variance	32.61	18.91	14.85
Factor Loadings			
Pupils	-0.168	**0.791**	-0.269
Parents	0.235	**0.784**	0.181
Local Authority	**0.786**	0.010	-0.100
OFSTED	**0.782**	0.106	0.041
Government	**0.800**	-0.068	0.175
Governors	0.485	0.327	0.322
Employers	0.189	0.059	**0.706**
Other	-0.100	-0.104	**0.788**

Table 8.5 Principal components of quality constituencies

Factor 1 is clearly external authority, while factor 2 represents the direct customers of the service. Given that Other represents local community and the Church in most cases Factor 3 could be seen as external customers. School

Governors sits across all three components, authority, internal and external customers, a situation quite compatible with the role of governors. Cronbach's alpha values of .74 and .77 were obtained for factors 1 and 2 indicating moderate reliability. Factor 3 gave a value of .38 suggesting that too much reliance should not be placed on it. Given the high proportion of missing values under Other, this is hardly surprising.

Perceptions of Quality

Question 13 offered 9 definitions of quality and invited respondents to chose the four most important. Some felt that they were all equally important, but a few respondents only selected three. Table 8.6 shows the results.

Number	Definition	Cluster	% Choosing
1	Doing our job in the best possible way	2	20.1
2	All round development of individual child, not only academic skills	1	81.2
3	Continuously to improve what we offer	2	35.5
4	Quality impinges on everything we do and needs to be reflected in every aspect of our work	2	37.4
5	Quality of teaching and of learning	1	81.2
6	Quality of relationships	1	55.2
7	Getting that bit more out of people, whether staff or students, than they think they're capable of	2	27.3
8	Key indicator of quality is levels of satisfaction from customer, OFSTED, governing body.	2	13.5
9	Deliver to the vision developed with governors, parents, staff	2	46.5

Table 8.6 Quality definitions

In the main there was little difference between primary and secondary schools, except that only 8% of secondary heads selected "*Doing our job in the best possible way*", compared with 23% of Primary heads and 40% of Secondary heads chose "*Getting that bit more out of people, whether staff or students, than they think they're capable of*" compared with 24% of Primary Heads.

The data was analysed using hierarchical cluster analysis. Clustering was done on variables, using squared Euclidean distance as the difference measure. Most methods gave the same cluster structure. The dendrogram for Ward's method is shown in figure 8.4. This clearly shows a two cluster model, one cluster consisting of definitions 2, 5 and 6, and the other of 1, 8, 7, 3, 4 and 9 (with 9 showing a relatively poor fit).

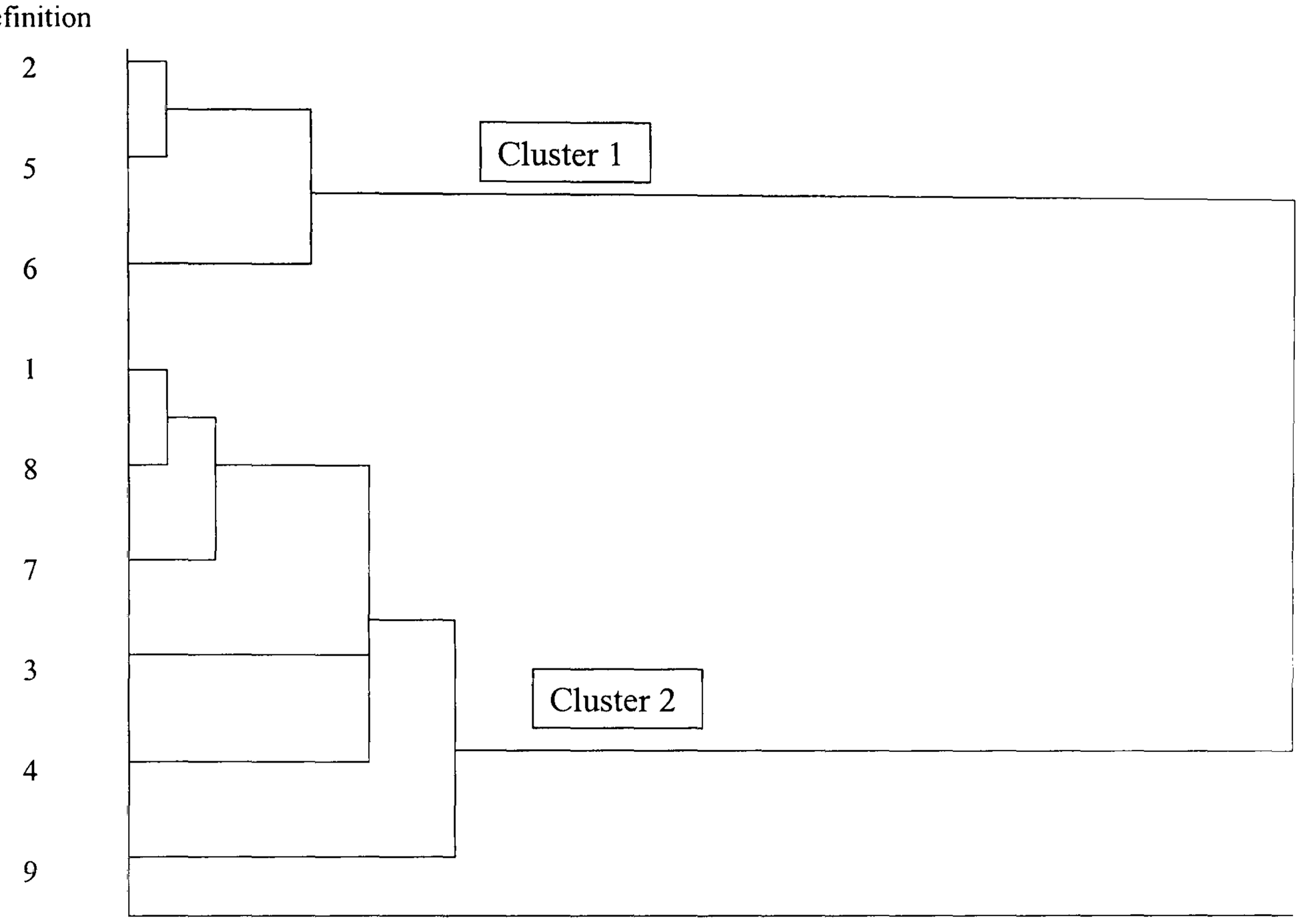

Figure 8.5 Dendrogram of clusters – Wards method

Two clusters are identified in table 8.6. Cluster 1 is certainly focused upon issues of personal development of the child with all round development, teaching, learning and relationships all being stressed. Definition 6 is not specifically child centred, but from the context it is reasonable to assume that that is the main focus. The other definitions are all, to a greater or lesser extent task focused. Definitions 1, 3, 4 and 7 all implicitly or explicitly concern the task of management, while definitions 8 and 9 link this to explicit external expectations.

Importance of quality

A mean of 6.7 reflects the importance of quality. No school gave a value of less than 4.

Measurement of Quality

Table 8.7 presents the mean Likert scores for the usefulness of the various methods.

	N	Mean
Individual academic tracking	165	6.33
Class Observation	162	6.06
Student Response Observation	164	5.95
Individual behaviour tracking	161	5.78
Exam performance	110	4.90
SATs	158	4.49
Questionnaires to Parents	149	4.40

Table 8.7 Usefulness of methods of measuring quality

The first four categories all involve a degree of direct observation and this is obviously most favoured whether of the class or the pupil, with secondary methods being seen as much less useful.

The only difference between Primary and Secondary sectors was in the usefulness of Exam performance, where the Primary sector rated this at 4.5 the Secondary at 5.8

Principal components analysis of the 7 methods yielded a good 3 component model, shown in table 8.8. Again missing values were replaced with the neutral score of 4. The three component model was again selected using both the minimum eigenvalue = 1 rule and the fact that the next three components accounted for broadly similar proportions of the remaining 30% of the variance. as shown in figure 8.6.

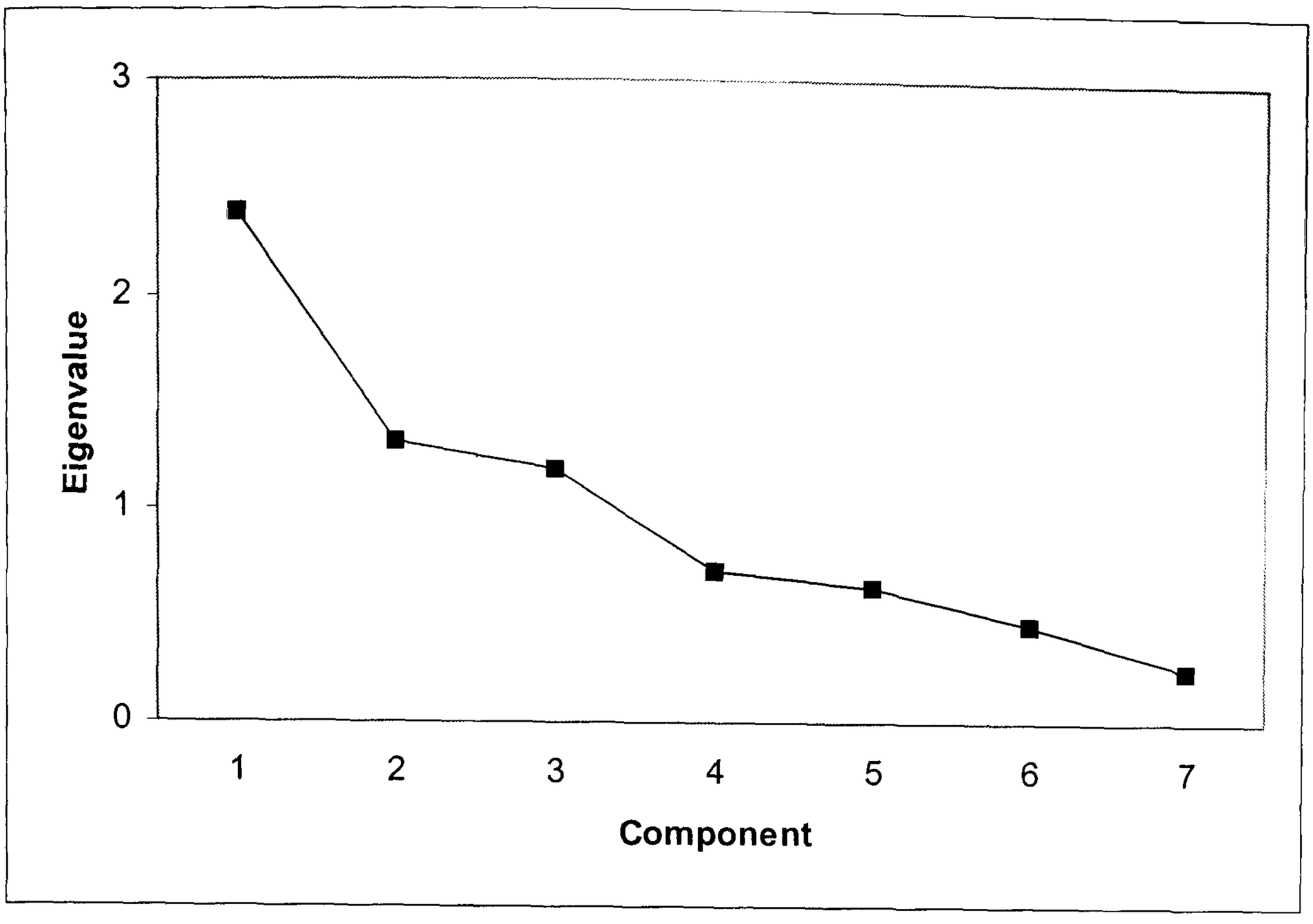

Figure 8.6 Scree Plot of Quality Measures Components

	Component		
Statistics	**1**	**2**	**3**
Eigen Value	2.38	1.32	1.19
% Variance	33.94	18.83	16.93
	Factor Loadings		
Individual academic tracking	0.148	**0.832**	0.211
Individual behaviour tracking	0.170	**0.858**	-0.144
Questionnaires to Parents	**0.587**	0.206	0.143
Student Response Observation	**0.890**	0.076	-0.087
Class Observation	**0.844**	0.111	0.099
SATs	0.264	-0.097	**0.793**
Exam performance	-0.102	0.139	**0.805**

Table 8.8 Principal components of quality measures

Component 2 is clearly related to the individual student, while component 3 is based upon external measures of performance. Component 1 is primarily

concerned with direct observation and the role of questionnaires to parents in this is puzzling. The three components give Cronbach's alpha values of 0.71, 0.67 and 0.61 respectively suggesting limited reliability.

School Performance

Table 8.9 shows the mean Likert scores for school performance. 7 represented the highest value.

	N	Mean
Overall performance	166	5.19
Compared with similar schools	163	5.28
Potential for improvement	164	5.01
Importance of improvement	162	6.30

Table 8.9 Perceived performance of the school

A score of 5.19 suggests that in general schools see themselves as performing tolerably well, but with scope for improvement. This is born out by the score of 5.01 for improvement potential. Only three schools gave themselves 7 on overall performance. The score of 5.28 on comparison with other similar schools, would suggest that most schools believe they are better than average. No fewer than 14 schools scored 7 here. The importance of performance improvement is given a very high score.

8.1.3 Organisation of the School

Senior academic team

	N	Minimum	Maximum	Mean	Std. Deviation
Number	154	1	22	4.446	3.086
Student ratio	153	16	280	98.852	55.729
Staff ratio	145	1	17.5	4.935	3.319

Table 8.10 Composition of senior academic team

Senior academic staff in itself means little, and the ratio of senior staff to students or to total academic staff is more meaningful. The relationship is logarithmic, as

might be expected, since the numbers must be at least partially task driven. The respective r^2 are 0.393 for staff and 0.419 for students.

Organisation

Almost all schools said that senior management had multiple responsibilities. The most frequent basis for allocating responsibilities was curriculum.

	Yes	**Primary %**	**Secondary %**
Multiple Responsibilities	155	99.1	100
Curriculum	137	78.5	97.4
Key Stage	84	55.4	35.9
Administration	80	36.4	82.1
Year Group	75	37.2	66.7
Other	44	19.8	41.0

Table 8.11 Allocation of responsibilities

Significant differences are apparent between primary and secondary schools, and while some of these may be size related they are hardly surprising with secondary schools being more concerned with year group and curriculum and primary schools being more concerned with key stage.

129 Schools had a formal senior management team and 33 did not. Those that did not were almost exclusively small schools with a mean academic staff of 6 as against a mean of 28 for those that did. If the two larger schools which reported no senior management team are removed (one at 20 and one at 35 academic staff) then this mean reduces to 4.6.

The majority of SMTs were exclusively academic, with a mean of 4.6 and a range of 2 up to 10 members. 21 Schools involved between 1 and 3 non-academic staff, while only 3 involved governors in the SMT. Most (54%) met weekly. 14% of schools held open SMT meetings while a further 57% allowed non-members to be present by invitation. In general open meetings were held in primary schools with only two secondary schools holding them.

Individual Staff Contribution

The question asked the extent to which individual staff contributed towards decisions on policy and practice in the 6 areas. The results are shown in table 8.12.

	Minimum	**Maximum**	**Mean**
Own performance targets	1	7	5.28
Educational priorities for school	2	7	5.34
Professional Development	2	7	5.54
Priorities in own class/subject	2	7	5.80
Teaching style	4	7	5.90
Schemes of work	4	7	6.18
Individual/Team Ethos	4	7	5.93

Table 8.12 Extent of staff contribution to various decisions

In general it appears that staff make a substantial individual contribution in all areas, but there was considerable variation. Not surprisingly, the major contributions were in the individual professional areas of teaching style and schemes of work. Staff were less likely to be expected to make an individual contribution in more general areas of priorities and professional development. Perhaps surprisingly the contribution to own performance targets was very variable, with some schools giving this a score as low as one, implying that targets were completely imposed.

Principal components analysis on the six areas of individual contribution not surprisingly yielded a single factor solution as shown in figure 8.7. A Cronbach's alpha of 0.78 suggests moderate reliability.

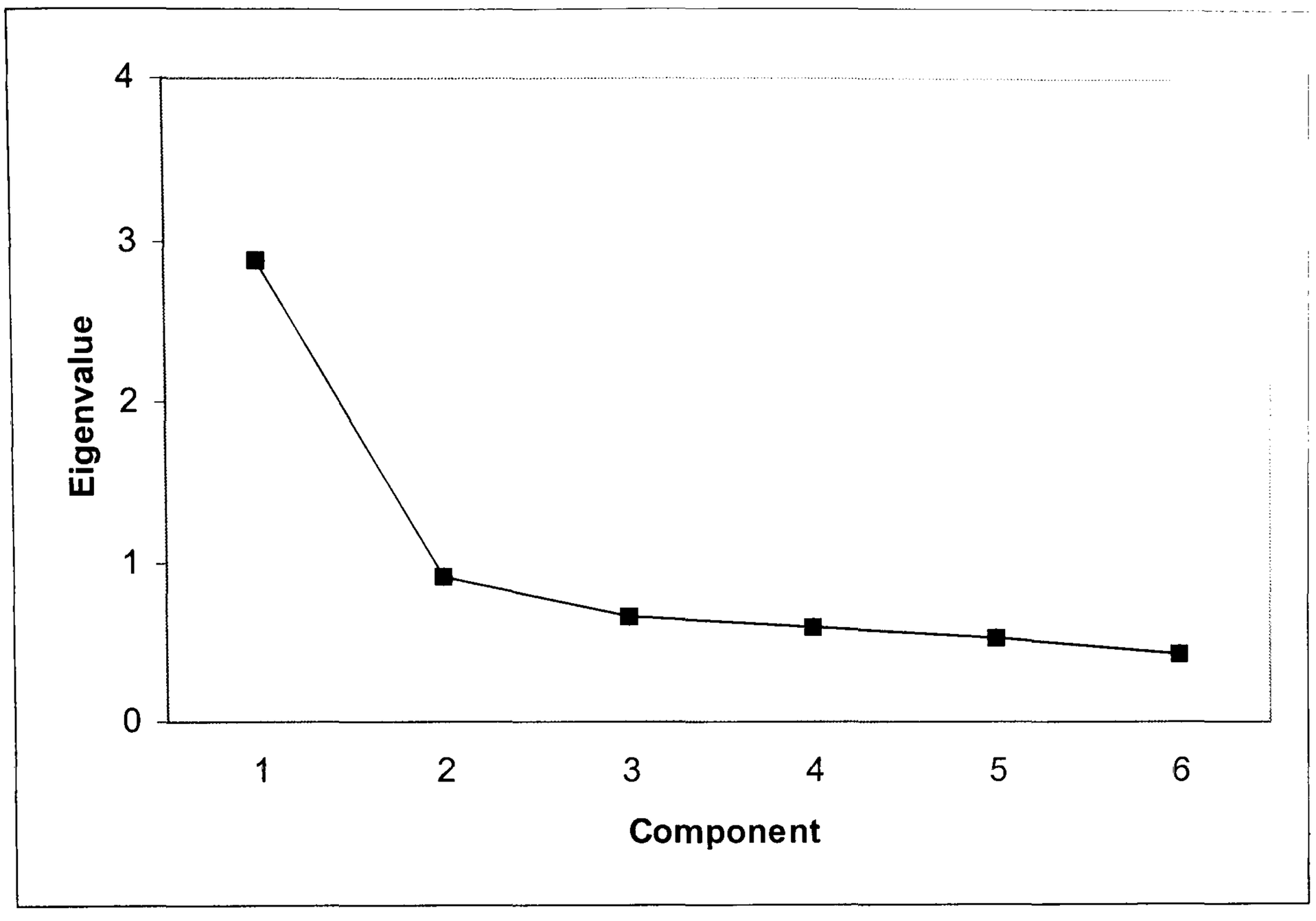

Figure 8.7 Principal components scree plot of areas of individual contribution

All schools favoured teamwork, with only 11 schools giving the neutral score of 4.

Management Style

Respondents were asked to select up to 7 from a list of 20 items considered most important for a "good headteacher/principal". Table 8.13 shows the results.

		Style	Cluster	% Choosing
1	Handles conflicts openly	E	1	10.69
2	Creates vision	C	3	84.38
3	Fully informs staff of decisions	P	2	38.36
4	Accepts new ideas	C	2	35.00
5	Gives continuous feedback of results	P	1	16.25
6	Creates a climate characterised by trust	E	3	71.07
7	Stimulates discussion among staff members	C	2	33.75
8	Stimulates individual achievement	C	2	25.79
9	Makes sure plans and rules are followed	P	1	9.43
10	Lets staff members participate in decisions	E	3	72.33
11	Able to make quick decisions	C	1	7.55
12	Careful preparation before a decision	P	1	8.18
13	Honest communication (no dagger in the back)	E	3	49.38
14	Flexibility	C	2	21.88
15	Gives responsibility to staff members	E	3	63.52
16	Strong dedication to work	C	2	35.85
17	Clarifies relevant claims	P	1	1.89
18	Creates order and structure	P	2	28.93
19	Is cautious in action	E	1	1.26
20	Is a careful planner	P	1	14.47
21	Has a sense of humour	C	3	61.88
Style: C = Change centered; E = Employee centered; P = Production centered				

Table 8.13 Characteristics of a good head

This shows a classic Pareto curve, with the top 6 items accounting for over 70% of choices. The overall picture is of trust, co-operation, openness and participation. Only in three areas was there a difference between primary and secondary heads. *Lets staff members participate in decisions* was chosen by far more primary heads, but this may be a function of size rather than management style. Compared

with secondary heads, primary heads felt that *Accepting new ideas* was relatively unimportant while primary heads ranked *Creating order and structure* rather more highly than secondary heads.

As discussed in chapter 7, this instrument was designed to measure the three dimensions of leadership identified by Ekvall and Arvonen (1991). Hierarchical cluster analysis was applied to the data to verify this classification. Most methods gave a more or less convincing two or three cluster solution such as that shown in figure 8.8.

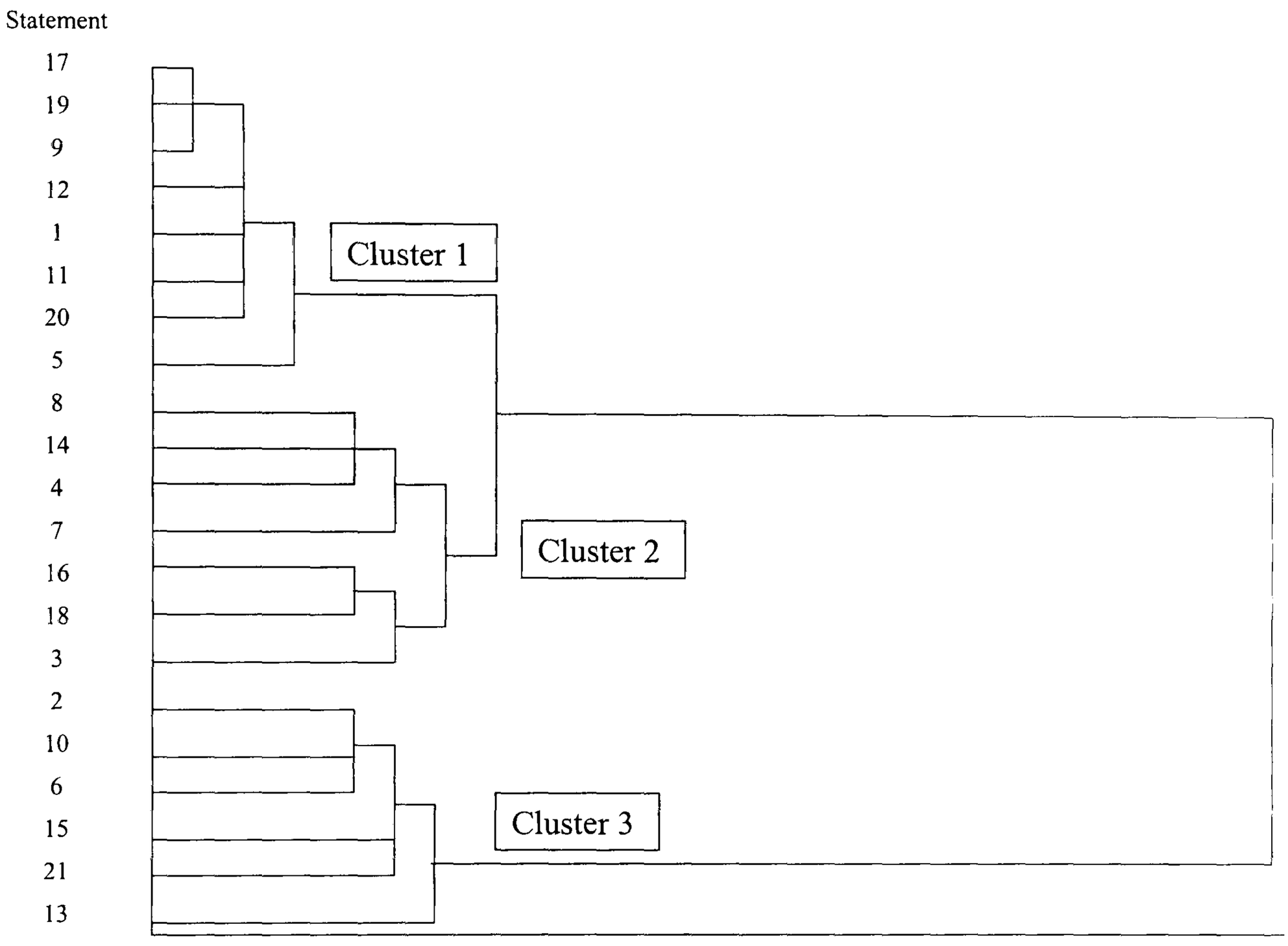

Figure 8.8 Dendrogram of clusters – Wards method

Cluster 1 consists of statements 1, 5, 9, 11, 12, 17, 19 and 20, while cluster 2 includes 3, 4, 7, 8, 14, 16 and 18. Cluster 3 includes the remaining statements 2, 6, 10, 13, 15 and 21.

The distance between clusters 1 and 2 is not great, and may well be too slight to be worth considering, but overall cluster 1 is mainly concerned with production centred, cluster 2 with change centred and cluster 3 with employee centred

attitudes. If not strongly supporting Ekvall and Arvonen's model, the data does at least not contradict it.

The overall scores for the three dimensions are shown in Table 8.14. Values were calculated by dividing the number of positive answers by the total number of answers in each style category for each respondent.

Style	N	Minimum	Maximum	Mean	Std. Deviation
Change centered	155	0.125	0.75	0.38	0.126
Employee centered	155	0	0.83	0.45	0.163
Production centered	155	0	0.57	0.16	0.136

Table 8.14 Leadership style

It is perhaps not surprising that heads scored most on employee centred and least on production centred. What is more surprising is that while all heads chose some change centred topics, 41 (25%) heads scored zero on production centred, while 3 (2%) scored zero on employee centred.

Statemented children

This information was not included in the questionnaire but was obtained from the DFEE website. It was obtained only for schools for which examination performance figures were available as it was found not to correlate with internal performance measures

It was converted into a ratio of statemented children to total roll.

The mean was found to be 0.021, with a range of 0 – 0.10 and a standard deviation of 0.018.

8.1.4 External Measures of performance

GCSE scores

GCSE scores are reported in a number of different ways according to number of subjects passed and according to grade achieved. While a common reporting measure is the percentage of pupils achieving 5 grade A-C results, it was felt that this was flawed because it disregarded all other results. It was decided that the total mean points score per pupil was a more complete and comparable measure. Points scores are arrived at by assigning 8 points to an A* grade down to 1 point for a G grade (DFEE (1)).

	N	Minimum	Maximum	Mean	Std. Deviation
GCSE 1998	27	12.4	66.7	39.87	11.41
GCSE 1999	25	27.4	67.8	42.76	10.55

Table 8.15 GCSE scores

As table 8.15 shows the figures for 1998 and 1999 are very similar, with a Pearson's correlation coefficient of 0.925.

SATs Scores

SATs are measured across three subjects and reported as proportion of pupils attaining the requisite target level. At present only Key Stage 2 results are available and the target level is level 4. To obtain a single measure for a school the proportion achieving level 4 in each of the three subjects was added, giving a maximum of 3. The result is shown in table 8.16.

	N	Minimum	Maximum	Mean	Std. Deviation
SAT98	81	0.65	2.93	1.96	0.51
SAT99	77	0.94	2.96	2.19	0.46

Table 8.16 SATs scores

The correlation between the two years, while still significant at 0.715 is not as great as that for GCSE results.

Common measure of performance

In order to achieve a measure of external performance that could be used across all schools, the two sets of results were normalised and combined. The results are shown in table 8.17.

	N	Minimum	Maximum	Mean	Std. Deviation
98 result	106	-2.57	2.35	0.031	0.97
99 result	102	-2.71	2.37	0.000	0.99

Table 8.17 Combined examination scores

Again a significant correlation of 0.763 was found. Since the survey data was collected during the 1998/99 academic year, it was decided that the 1999 results would for a better basis for determining influences on quality, so further analysis is based only upon the 1999 results.

8.1.5 Relationship between Quality Indicators

While the heads' own opinions of performance are not expected to be the same as exam performance, some relationship would be expected, particularly among those heads who rate exam performance highly as a quality indicator. The extent and nature of these relationships has a bearing upon the validity of the data.

The correlation (Spearman) with Heads' assessment of quality was generally significant as shown in table 8.18.

PRIMARY	1998	1999
Overall performance	0.495**	0.211
Compared with similar schools	0.550**	0.271*
Potential for improvement	-0.218	-0.195
Importance of improvement	-0.333**	-0.185
SECONDARY		
Overall performance	0.729**	0.712**
Compared with similar schools	0.557**	0.574**
Potential for improvement	-0.234	-0.112
Importance of improvement	-0.036	0.16
** significant at .01. * significant at .05		

Table 8.18 Correlation between exam performance and heads estimates

This shows that secondary heads in particular have a good grasp of their school's performance in exam terms, both absolutely and relative to other schools, and that this makes a major contribution to their assessment of performance. It is noteworthy that the correlation with the 1999 figures, which were not known at the time of the survey, is almost as good as that with the 1998 figures.

The picture is less clear with SATs results and primary schools, particularly when looking at 1999.

This is consistent with expectations in that secondary schools have been driven by and judged on examination performance for many years. Regardless of a head's *individual opinion, examination performance has to be considered important.* Primary schools on the other hand have only recently been re-introduced to the rigours of published examination results (the 11 plus was largely abolished in the 1960s while SATs were only introduced in the early 1990s), so that attitudes have not necessarily changed to accommodate this.

Those (20) secondary heads who ranked examination performance most highly (scores of 6 or 7) as a measure of performance showed the strongest correlation between exam performance and their perception of school performance (0.74 for 1998 and 0.78 for 1999), while those (7) who valued examination performance less highly showed no significant correlation between the two measures. No

significant relationship was found between the rating of SATs as a measure of performance and the correlation between SATs score and primary heads' perception of performance.

This suggests that secondary heads are applying consistent criteria in estimating school performance and that the subjective measure is valid. The lack of effect with primary heads is consistent with the assumption that attitudes have not really changed to accommodate SATs.

Negative correlations between exam performance and potential for improvement would be expected to the extent that exam performance is an important element in the heads' appraisal (the better the result the less scope for improvement), and small negative correlations are found. The same can be argued for improvement importance, but the very small variation in score for this (88% scored 5 or 6) suggests that this result is best ignored.

Overall the external performance measures would appear to validate the estimates of the heads suggesting that these are valid reflections of informed opinion. This in its turn suggests that other answers are equally valid.

8.2 External Influences on Quality

Factors which might influence performance were identified as:

- Size of school
- Gender (if single sex and which)
- Selectivity on academic ability
- School Type
- Catchment
- Student/Staff ratio
- Free school meals
- Non-native English speakers
- Length of service of the head

- Statemented children

These were tested against both the schools' perceptions of their absolute and relative performance and against the standardised exam performance using either simple correlation where the independent variable is more or less continuous, or t-test or ANOVA where it is not. Special schools were removed from the data set for this and all subsequent analyses.

8.2.1 Impact of external factors

No evidence of association with any measures of quality was found for either size of school or length of service of the head and there were too few cases to allow gender effects to be tested.

Taken individually all the other variables showed significant effects upon at least some measures of quality. These could not, however, be taken at face value because of the obvious collinearity. For example there is a strong and highly significant (better than .001) relationship between Catchment and Free School Meals as shown in table 8.19. This is hardly surprising since both are generally agreed to be indicators of social deprivation. Indeed it would have been rather more surprising if inner city and council estate catchments had not shown the highest proportion of free school meals.

Catchment	% Free School Meals
Inner City	32.44
Suburban Council	18.76
Rural	3.92
Suburban Private	6.63
Other	6.25
Mixed	9.69

Table 8.19 Relationship of catchment with free school meals

In order to allow for this collinearity multiple regression was first applied to the continuous variables, and the independent effects of the discrete variables were investigated on the residuals. This was partly from a presumption of prior cause,

for example private schools may have better results because they do not have socially deprived children, but the reverse argument is self-evidently insupportable. On the other hand there is no presumption about the relationship between free school meals and catchment. Both are symptoms of the same cause, however, the continuous variables are more discriminating than the very crude groupings of catchment and therefore offer the better opportunity for correction of the performance data.

Significant correlations were found between examination performance and free school meals and statemented children. The results are shown in table 8.20. The minimum eigenvalue of 0.244 suggests that collinearity is not an issue between these two variables.

	Unstandardised coefficient	**Significance**
Constant	0.835	.000
Free School Meals	-0.036	.000
Statements	-17.93	.001
Multiple correlation coefficient		0.686
Minimum eigenvalue		0.244

Table 8.20 Regression on normalised exam score

Similar correlations arose with the two internal measures of quality, except that statemented children was replaced by non-native English speakers. The correlations were not as strong.

In the case of the comparative performance, very little effect would have been expected since heads were being asked how they rated with comparative schools, and would be expected to take such factors into account. The low correlation coefficient of 0.281 suggests that they were doing this fairly effectively. The correlation with absolute performance is rather stronger, but still not good. The values are shown in tables 8.21 and 8.22.

	Unstandardised coefficient	**Significance**
Constant	5.430	.000
Free School Meals	-0.022	.002
Non-native English	0.011	.005
Multiple correlation coefficient		0.281
Minimum eigenvalue		0.287

Table 8.21 Regression on comparative performance

	Unstandardised coefficient	**Significance**
Constant	5.407	.000
Free School Meals	-0.0213	.000
Non-native English	0.0054	.052
Multiple correlation coefficient		0.321
Minimum eigenvalue		0.287

Table 8.22 Regression on absolute performance

The negative correlations with free school meals support the expectations that free school meals are a measure of social deprivation and that higher social deprivation leads to lower achievement. The relationship between exam performance and statements is also to be expected since in general statemented children are likely to perform less well at examinations. The positive correlation with non-native English speaking homes is superficially counterintuitive, however it should be remembered that in the region surveyed, the majority of non-native English speakers originated in India/Bangladesh/Pakistan, cultures which are generally believed to put a high value on education. A recent report in the Leicester Mercury (2000) showed that Indian and Pakistani ethnic groups achieved the target of 5 A-C grade GCSEs in 53% and 50% of cases respectively in Leicester. This compares with an overall average of 37%. The correlation with non-native English speakers was present with exam performance but not at a significant level.

Selectivity

Schools selecting on academic ability still showed a significantly better performance when corrected results were assessed as shown in table 8.23.

	Selective	**N**	**Mean**	**Significance (2 tailed)**	**Difference**
Comparative Performance	Yes	3	1.182	0.055	1.205
	No	159	-.022		
Absolute Performance	Yes	3	1.232	0.005	1.255
	No	159	-.023		
Exam Performance	Yes	3	0.673	0.05	0.701
	No	84	-0.029		

Table 8.23 Effect of selectivity on performance

Results were adjusted by adding (or subtracting as appropriate) the means for each group from the relevant individual values.

School Type

Analysis by school type (one way ANOVA) showed no significant differences in the adjusted internal measures, but significant (.007) differences were still found in exam results when state and non-state were compared as groups as shown in table 8.24.

School Type	**Number**	**Mean**
State	81	-0.106
Non-state	21	0.490

Table 8.24 Mean adjusted exam performance by type

Since there is no obvious mechanism to explain this difference it has not been corrected at this stage.

8.2.2 Overall effect of external factors

The total effect of these adjustments is to reduce the variance of absolute performance by 11.7% and of comparative performance by 14.5%. While the difference is slight, the greater reduction in the variance of comparative performance is to be expected since it is more likely to take account of these issues.

The overall effect upon examination performance is far more striking, with 44% of the variance explained by external factors. This increases to 48.5% if the state school effect is included. The results are shown in table 8.25

	Original		**Corrected**		**Difference %**
	Mean	**Variance**	**Mean**	**Variance**	
Comparative Performance	5.28	1.290	-0.0003	1.139	11.7
Absolute Performance	5.20	0.681	-0.0002	0.582	14.5
Exam Performance	0.00	0.990	-0.00015	0.54	45.4

Table 8.25 The effect of external factors on performance measures

8.3 Internal Influences on Quality

Internal factors which might influence performance were identified as:

- Importance of Quality Constituencies
- Perceptions of Quality
- Importance of Quality
- Methods of Measurement of Quality
- Organisation of school
- Individual Staff Contribution
- Management Style

8.3.1 Quality constituencies

Multiple regression of importance scores of quality constituencies against the three measures of performance yield no significant relationships.

The seven point scale was reduced to a three point scale (1-3 = 1; 4 =2; 5-7 = 3) to allow groups of sufficient size to carry out analysis of variance. Significant results are shown in table 8.26.

Constituency	**Importance**	**Exam**		**Comparative**		**Absolute**	
		Mean	**Significance**	**Mean**	**Significance**	**Mean**	**Significance**
Local Authority	1	.32	.09	.76	.001	.17	.18
	2	.06		-.34		-.14	
	3	-.14		.05		.09	
Employers	1	-.12	.41	-.56	.015	-.06	.023
	2	.20		-.55		.040	
	3	.23		.16		.16	

Table 8.26 Significant quality constituencies

Despite the convincing component structure found earlier, no relationship was found between component scores and any of the measures of performance.

8.3.2 Perceptions of Quality

The impact of the individual definitions was tested using t test on the mean performance scores. The significant findings are shown in table 8.27

Definition	**Measure**	**Yes**		**No**		**Significance**
		N	**Mean**	**N**	**Mean**	
Doing our job in the best possible way	Comparative	28	0.444	123	-0.074	.018
Quality of teaching and of learning	Comparative	123	-0.062	28	0.393	.038

Table 8.27 Impact of quality definitions

Cluster scores were computed by summing the number of positive selections in each cluster for each case. These raw scores did not yield any significant relationships with the performance scores.

The balance between the two clusters was then computed for each case by dividing each score by the maximum possible score (3 in the case of cluster 1 and 4 in the case of cluster 2) and subtracting the cluster 2 (task centred definitions) score from the cluster 1 (personal development definitions) score. While this showed no relationship with exam performance, there were small but significant correlations with both relative (Pearson r = -0.222) and absolute performance (Pearson r = -0.168). Both of these correlations are negative, suggesting that in general the more task centred perceptions correspond with a perception of better performance.

8.3.3 Importance of Quality

Although all respondents rated quality at 4 or more, significant relationships were found between performance and importance. This is shown in table 8.28

	Quality Importance	**N**	**Mean**	**Significance**
Exam	4	3	-0.407	0.082
	5	6	-0.407	
	6	12	0.429	
	7	64	-0.018	
Comparative	4	3	-0.967	0.000
	5	12	-1.008	
	6	20	-0.112	
	7	117	0.199	
Absolute	4	3	-0.943	0.002
	5	12	-0.488	
	6	20	0.024	
	7	117	0.135	

Table 8.28 Performance against quality importance

With comparative and absolute performance there are clear and highly significant trends, with those who feel quality is most important perceiving their performance as substantially better. This is reflected in significant Pearson's correlation coefficients of 0.331 (comparative) and 0.294 (absolute). The relationship with exam performance is less strong but still follows the same general trend.

8.3.3 Methods of Measurement of Quality

No direct relationships between the component scores identified previously and performance measures were observed either with regression or t-test (comparing negative with positive factor scores).

The possibility that some sort of balance between the components might be important was tested first by looking at differences and then at ratios. A significant correlation (Pearson –0.26, significance 0.015) was found between the ratio of individual student to external measures. While small this does suggest that too great a stress on the individual at the expense of examinations as a means of measuring performance does lead to poorer examination performance. A perfectly rational outcome.

8.3.4 Organisation of school

No relationship was found between the number of senior academic staff and performance. Both absolute size, ratio to academic staff and to students and ratio to the logs of these values were considered.

Neither the presence nor absence of a formal senior management team, nor its composition when present, had an effect.

Oddly, positive correlations were found between student staff ratio and all measures of performance, though none were significant. This is counter-intuitive but probably a product of the poor quality of the staff number data. It certainly suggests that, within the range considered, SSR is not linked to performance.

Senior management responsibilities

ANOVA was carried out on the responsibility data. As there are significant structural differences between primary and secondary schools, this was carried out both on the whole data set and on the two groups separately. The significant (at better than 0.05) results are shown in table 8.29.

Responsibility		**Exams**		**Comparative**		**Absolute**	
		Mean	**N**	**Mean**	**N**	**Mean**	**N**
Administration	No	0.188	43				
	Yes	-0.184	44				
Key Stage	No			0.1688	80		
	Yes			-0.165	82		
PRIMARY							
Key Stage	No	0.407	21				
	Yes	-0.152	30				
Curriculum	No					-0.331	26
	Yes					0.069	94
SECONDARY							
Year	No	-0.712	8	-0.338	13	-0.233	13
	Yes	-0.091	18	0.419	28	0.188	28

Table 8.29 Relationship between responsibility and performance

It is perhaps not surprising that there is a negative relationship between exam performance and senior staff being allocated responsibility for specific administrative functions. It is certainly reasonable to propose that such functions could be carried out by administrative staff and that this allocation of responsibility effectively reduces educational input. The relationship held for both primary and secondary schools, but was only significant for the whole population.

It is more difficult to interpret the relationship with responsibility for Key Stages. This was predominantly due to primary schools, though again only significant at the 5% level for the whole population. The relationship with exam performance in primary schools is even less explicable since key stage is the main examination output.

All secondary schools had responsibility by curriculum area. Those primary schools that did not, seem to perform less well in their own opinion.

Perhaps the most striking result is that those secondary schools that did not have senior management responsibility for year groups showed a significantly poorer performance in all measures.

Frequency of meeting

No significant relationship was found with any of the performance measures.

Openness of meetings

No significant relationship was found with any of the performance measures.

8.3.6 Individual Staff Contribution

Of the six areas investigated, two - contribution to professional development and contribution to priorities for own class/subject - showed significant differences when analysed using ANOVA. A clearer picture emerged however when the range of response was reduced by recoding 1-3 as small contribution, 4 as medium and 5-7 as large. These results are shown in table 8.30, with significant results highlighted.

		Exams			Comparative			Absolute		
		N	**Mean**	**Signif-icance**	**N**	**Mean**	**Signif-icance**	**N**	**Mean**	**Signif-icance**
Professional development	Small	2	**-1.07**	0.03	3	**-2.35**	0.00	3	**-1.66**	0.00
	Med.	11	**-0.28**		17	**0.015**		17	**0.12**	
	Large	73	**0.09**		139	**0.06**		139	**0.04**	
Priorities for class/subject	Small	4	0.32	0.68	7	-0.62	0.24	7	**-0.67**	0.03
	Med.	6	0.06		11	0.17		11	**-0.09**	
	Large	76	-0.006		141	0.03		141	**0.06**	
Schemes of work	Small									
	Med.	1	-0.94	0.20	3	-0.36	0.54	3	-0.31	0.44
	Large	85	0.025		156	0.02		156	0.02	
Teaching style	Small									
	Med.	4	0.49	0.17	7	-0.73	0.06	7	-0.41	0.11
	Large	81	-0.02		151	0.04		151	0.04	
Performance targets	Small	8	-0.09	0.79	14	-0.38	0.24	14	-0.14	0.32
	Med.	10	-0.10		20	-0.06		20	-0.15	
	Large	67	0.04		118	0.10		118	0.07	
School priorities	Small	7	-0.43	0.20	11	**-0.64**	0.05	11	**-0.42**	0.03
	Med.	11	-0.085		21	**-0.20**		21	**-0.21**	
	Large	68	0.08		127	**0.10**		127	**0.09**	

Table 8.30 Relationship between individual contribution and performance.

What is noteworthy is that in all cases of internal measures of performance and the majority of cases with external measures, the performance improves with degree of individual contribution.

The single component obtained from principal components analysis suggest a high degree of multicollinearity and renders multiple regression inappropriate. Regression against the single component score yielded small but significant correlations with the comparative and absolute performance (Pearson of 0.202 and 0.209 respectively).

Ethos of school

The extent to which the ethos of the school was based upon team effort also showed a significant impact upon internal measures of performance. The ANOVA results are shown in table 8.31, the score represents the four values on the 1-7 Likert scale. 7 represents completely team based.

Score	Comparative			Absolute		
	N	Mean	Significance	N	Mean	Significance
4	10	-0.509	.021	10	-0.589	.001
5	36	-0.278		36	-0.145	
6	66	0.017		66	0.004	
7	47	0.328		47	0.282	
Pearson r		.246	.002		.301	.000

Table 8.31 Impact of ethos on performance

Performance clearly is higher the greater the team basis of the school ethos. This was confirmed by linear regression, which gave the significant correlations shown.

8.3.7 Management Style

The individual scores for the three management styles; change centred, employee centred and production centred, showed no significant correlations with any of the performance measures, However Ekvall and Arvonen (1991, p25) suggest that an appropriate balance is a sign of good management

> " The individual manager's leadership style is a combination of the three behaviour patterns. The "best" combination certainly depends on the composition of the situation…"

Despite the superficially appealing logic of this proposal, attempts to develop a composite measure of distance from the ideal point suggested produced nothing of significance. The basic measure used was the square root of the sum of the squared distances of each observation from a postulated ideal point. For example if 0.5, 0.5, 0.5 is chosen as the ideal point in the three dimensional styles space, then the score for each observation becomes

$$\sqrt{(\text{Change} - 0.5)^2 + (\text{Employee} - .5)^2 + (\text{Production} - .5)^2}$$

The range of possible ideal points is infinite, but realistically they must lie within, or close to the space occupied by the data. As the ideal point should maximise performance, a simple hill climbing approach, where co-ordinates were changed individually in the direction which increased negative correlation with the performance measures was used. Trends were certainly observed but the best correlations never exceeded -0.16, nor did they approach significance.

The lack of significant correlations suggest that management style, as measured and within the range observed, is not a major influence upon school performance. However the observed best results are consistent with an influence.

8.4 Overall Impact of Internal Influences

Sequence of processing had very little effect upon the outcomes.

Correction for continuous variables was carried out first since they explained the greatest proportion of variance.

Stepwise multiple regression was used to identify the impact of the identified variables on the residual performance variation. These are:

- balance between quality clusters
- importance of quality
- contribution to professional development
- ethos of the school
- the ratio of individual student to external measures of quality

Collinearity is a potential problem here, particularly between contribution to professional development and the ethos of the school (Pearson r = .35), however none of the final solutions included both of these variables. Principal components analysis showed that these two variables mapped onto a single factor, but the others were substantially independent.

The relevant influences are shown in tables 8.32, 8.33 and 8.34.

	Unstandardised coefficient	Significance
Constant	0.023	.028
Quality measures ratio	-0.028	.012
Professional development	0.197	.021
Multiple correlation coefficient		0.360
Minimum eigenvalue		0.016

Table 8.32 Regression on exam performance

The negative correlation with the quality measures ratio is to be expected since the ratio was expressed as Individual/External, i.e. the higher the value the lower the relative importance of examinations. Schools which value exams highly as measures of performance do better at exams. The relationship with responsibility for own professional development is less easily explicable except as a general indication that greater independence and discretion lead to better performance.

	Unstandardised coefficient	Significance
Constant	-2.729	.000
Ethos	0.267	.000
Quality clusters	-0.317	.007
Quality importance	0.178	.017
Multiple correlation coefficient		0.476
Minimum eigenvalue		0.006

Table 8.33 Regression on absolute performance

	Unstandardised coefficient	Significance
Constant	-4.205	.000
Ethos	0.277	.002
Quality clusters	-0.442	.010
Quality importance	0.379	.001
Multiple correlation coefficient		0.431
Minimum eigenvalue		0.004

Table 8.34 Regression on comparative performance

The same three variables have very similar effects upon both absolute and relative perceived performance. The greater the team ethos, the better the performance and schools which think quality more important also believe they are delivering a higher quality. The quality clusters variable was arrived at by subtracting the cluster 2 (task centred definitions) score from the cluster 1 (personal development definitions) score. The negative correlation suggests that schools which adopt a more task centred definition of quality achieve a better performance than those which stress personal development.

The impact of responsibility for administration became insignificant after this adjustment, however the other influences still applied at significant levels.

The overall effect of these adjustments on variance is shown in table 8.36. The greatest effect is seen in absolute performance where a further 38% of the variance is explained.

	N	**Mean**	**Variance**	**Variance explained %**
Exam	87	0.000	0.540	
Adjusted	86	0.000	0.389	27.96
Comparative	162	0.000	1.139	
Adjusted	147	0.000	0.897	21.26
Absolute	162	0.000	0.582	
Adjusted	130	0.000	0.363	37.70

Table 8.36 Variance explained

Overall the internal and external factors taken together explain 60.7% of the examination performance variance, 30.5% of the comparative performance variance and 47% of the absolute performance variance.

8.5 Conclusions

The major influences upon exam performance in schools are outside the direct control of most schools. The perceived performance of the school, although, correlated with examination performance, does take account of other, less well measured issues which were more susceptible to internal influences. Overall both

external and internal influences have been identified which affect school performance in ways which are rationally explicable.

9 Conclusions

This chapter considers the implications of the analyses presented in chapters 6 and 8. This is carried out under three headings. Firstly the implications of the findings for the original research hypotheses, and in particular the three-dimensional model of service quality, are considered. This is followed by a discussion of the findings regarding specific quality issues in the services studied. Finally some consideration of methodological issues is given.

9.1 The Research Objectives

The research objectives were stated in chapter 1 as:

The primary research objective is to demonstrate that a model of service quality relevant to the particular needs of service operations management can be developed and tested.

This depends upon two prior assumptions:

i) that such a model would be useful

ii) that such a model does not already exist

These will be tested only by reference to the literature.

The main objective can be broken down into three subsidiary questions as follows:

1. Do Operations decisions have a measurable and predictable effect upon service quality?

2. Does the effect of such decisions vary between different services, and is this variation is predictable?

3. Can a model be developed which will enable these effects to be predicted and measured?

Questions 1 and 2 are investigated both from the literature and by experiment, while the investigation of question 3 is the main aim of the primary research.

9.1.1 The literature

In chapters 2 and 3 it was argued that service and service quality are both complex and multi-dimensional. The well established manufacturing operations models fail to encompass this complexity fully and their application has tended to lead to the industrialisation of services. This process, by reducing variety and customer contact has certainly had an effect upon quality, at least as perceived by the customer. The analysis of perceived service quality, of necessity almost exclusively carried out from a marketing perspective, has given rise to a wide variety of more or less well supported models. There is certainly substantial overlap between these but there are still important differences. More importantly, even the most widely adopted and tested model, SERVQUAL, has failed to generate a convincing body of evidence for its universal applicability.

Leaving aside the question of applicability, the existing models of service quality do not readily map onto operations concerns. They may or may not model customer behaviour, but even if they did they do not readily lead to clear-cut decisions on how operations may manage and improve quality.

It is submitted that the arguments in chapters 2 and 3 amply support the two prior hypotheses above. The situation is of such complexity that modelling is essential to allow understanding and management, and the existing models are inadequate.

Support for question 1 is certainly indicated in the literature. It Is widely accepted that industrialisation of services frequently has an adverse effect upon perceived quality, and the literature on control and information systems also demonstrates the ability of inappropriate operations policies to damage service quality. This same literature also encompasses question 2; if different operations systems and procedures were not more or less appropriate for different services then there would be one best way to organise all services. Predictability is perhaps less certain.

Chapter 4 described the three-dimensional model. This model can be seen both as a model of service and of the important dimensions of service quality. Its origin lies firmly within the literature, but it does bring together elements of other models in a way that has not been previously described.

The potential for the model to map onto operations issues was also demonstrated in chapter 4. The mapping was demonstrated in terms of

Labour v automation

Front shop/back shop

Variability

Standardisation

Aspects of quality

Labour skills

Control and motivation

The key question therefore is:

Are the predictions of the model supported by the experimental data?

9.1.2 Predictions of the three-dimensional model

The model was tested directly in two services; retail banking and primary and secondary education, with the testing being rather more extensive within education.

The predictions of the model require first that the two services be classified within its terms. Retail banking is a highly standardised service with clear and well defined outcomes. For the majority of customers the requirements are a very limited portfolio of standard transactions. The movement of banks into insurance and investment markets has complicated this a little, but these activities are still primarily selling products.

In terms of the model, basic retail banking is essentially an objective, outcome based, service. It requires the accurate and timely processing of financial transactions and ready access to means of payment. It is increasingly 'hard' in that little or no interpersonal interaction is required for the service to be used.

The financial services element of banking, insurance and investment advice, is still primarily objective and outcome based. The suitability of an investment vehicle is perhaps slightly harder to define categorically, but its performance, in terms of cost and return is certainly objectively measurable. In many cases financial services purchase involves a far higher degree of interpersonal

interaction, and in the case of the branch based retail banks, it is normal for discussion with a qualified member of bank staff to take place. Where investment advice is being given this is in any case mandatory. The service is thus rather 'softer'.

Primary and secondary education are rather more complex. In common with many public services there is ambiguity about the identity of the customer who may or may not be the direct recipient of the service and in this case seven possible customers were identified on the questionnaire and three further customer groups were identified by the respondents. The evidence from the survey suggested that the schools' view was that Pupils (with an importance score of 6.93/7) and Parents (6.55/7) were overwhelmingly seen as the most important customers. The service will therefore be considered only from the point of view of these customer groups. These are the people who most directly experience the service, so are most likely to perceive inadequacies in the service operation directly.

Considering the three dimensions, it could be argued that education is primarily an outcome based service since an end product does exist (hopefully an educated person, but more objectively and mundanely a certificate of qualification), however, since this takes an average 10,000 hours or more of participation to achieve, the service is predominantly process based. In most cases it is delivered face to face, despite the rise of technology most classes are delivered by a teacher, and recent developments in educational thought have certainly led to a greater degree of interpersonal interaction. The service is therefore soft rather than hard. The extent to which the service can be seen as subjective or objective is much less clear. There are certainly children, and rather more parents, who perceive school as being about getting qualifications, and this is a completely objective outcome. 7 A grades at GCSE is exactly that and can be compared with other achievements. It does not matter that the assessment method might be flawed and that there are concerns about the relevance of examination performance to real ability. The customer perceives this as a desirable outcome. Unfortunately it is rather far removed from the bulk of the actual service delivery, and relying upon examination performance as a measure of quality falls into the same category of quality management as acceptance testing in statistical quality control.

Government policy has tended to deal with this by the introduction of intermediate assessments, SATs, and by periodic inspection of the whole school. Schools do not tend to see these as such useful indicators of quality giving OFSTED and by implication inspections a score of only 4.72/7 and examinations and SATs scores respectively of 4.9/7 and 4.49/7. While still well above a neutral score these were among the lowest scores given. The responses to the survey certainly indicate that heads perceive personal development as the most important task of the school and interpersonal relationships as very important. These are without question subjective issues. On balance the service lies towards the subjective end of the spectrum, but is characterised by an important and quite objective end point in the form of examination performance.

The location of these services within the model is shown in figure 9.1.

		Subjective	**Objective**
Process	**Hard**		
	Soft	Education	
Outcome	**Hard**		Retail banking
	Soft		Financial services

Figure 9.1 Location of chosen services

Predictions for retail banking

Table 9.2 shows the characteristics predicted in chapter 4 for objective outcome based services.

	Operations Issues	Quality Types	Skill Requirements	Motivation
Retail Banking	Automation Back Shop Predictable	**Design** **Conformance** Operations	Mechanistic	Extrinsic
Financial Services	Labour/ Automation Back Shop/ Front Shop Less Predictable	Design Conformance Operations	Interpersonal Skills **Mechanistic** **Technical Skill**	Extrinsic

Table 9.2 Predicted characteristics - banking

The *model* essentially claims that a bank providing good quality would conform to these characteristics and that quality would suffer to the extent that the operation deviated from this. The model predicts extensive use of automation and a high proportion of back shop activities for retail banking. The dominant quality issues are design, i.e. providing an appropriate portfolio of services, and conformance. Staff are largely required to follow procedures correctly so the main skill requirements are fairly mechanistic, although interpersonal skill is certainly required of customer contact staff. The prime motivation is extrinsic – people do not usually perceive being a bank clerk as reward in itself.

Financial services, within the retail banking context, involves rather more customer interaction and a higher degree of technical knowledge, but is otherwise very similar.

The required characteristic of a good extrinsic motivation control system are shown in table 9.3 (from table 4.6)

Element	Possible Characteristics
Sensor measure	Complete Objective Influenceable
Performance Standards	Moderate difficulty Set by person, and superior
Discrimination Source	Joint between person and other trusted source
Communication pattern	Person, superior with reward powers, peers
Communication speed	Fast
Communication frequency	As frequently as possible
Type of activity	Important or unimportant
Source of motivation	Rewards that are important

Table 9.3 Elements of a Control System for Extrinsic Motivation

Again the model implies that good quality will be achieved to the degree that these requirements are met.

Predictions for primary and secondary education

Table 9.4 shows the characteristics predicted in chapter 4 for subjective process based soft services.

	Operations Issues	Quality Types	Skill Requirements	Motivation
Education	Labour Front Shop Variable	Design Conformance **Operations**	Interpersonal Skills **Responsiveness** Technical Skill	Intrinsic

Table 9.4 Predicted characteristics - education

The model claims that a school providing good quality would conform to these characteristics. The model predicts a labour intensive front shop operation with a high level of variability in the interaction. All quality types are relevant, but with operations quality being dominant. Staff are required to show a high level of

responsiveness to the customer, but also require both technical and interpersonal skill. The prime motivation is intrinsic – teaching is often seen as and certainly promoted by government as, vocational.

The required characteristic of a good intrinsic motivation control system are shown in table 9.4 (from table 4.5)

Element	Characteristics
Sensor measure	Complete Objective Influenceable
Performance Standards	Moderate difficulty Set by person
Discrimination Source	Person, other credible source.
Communication pattern	Person.
Communication speed	Fast
Communication frequency	Time span of task
Type of activity	Important High autonomy and variety

Table 9.4 Elements of a Control System for Intrinsic Motivation

9.1.3 The accuracy of the predictions - banking

The banking example yields only a limited test of the model, since only a few branches of one bank were investigated. All branches were considered quality champions and the customer evidence suggested that this was justified, thus evidence is available for high quality service provision only. Given this, confirmation of the model requires that the prediction should be to a large extent fulfilled by the data.

Operations Issues

Retail banking is indeed heavily back shop oriented with a high level of automation. While the financial services aspect involves more front shop consultation, the main production aspects are back shop and the product range is highly standardised.

Quality types

Analysis of the interviews showed that customers were mainly concerned with conformance with a score of 0.63 compared with 0.2 for design and 0.17 for operations issues. This is consistent with the predictions of the model. The difference between design and operations is slight, but, given the data collection method, a satisfactory product range would probably not lead to much comment. Staff also rated conformance issues most highly with a score of 0.43, but rated operations quality at 0.33 compared with 0.2 for design. There is evidence from the interviews that the customer service staff were in fact compensating for poor operational quality in the back shop processes by introducing delays to allow for inspection and correction, hence this greater concern for operations quality issues. The conclusion is that although the branches considered were quality champions, the bank as a whole was not of such high quality hence the deviation from the prediction.

Skill requirements

High levels of technical training are generally found in banking, and the financial services staff in particular were extensively trained. The training is primarily technical and procedural. These branches were perhaps unusual in the effort put into customer care training. This seemed to be fairly mechanistic in its content and presentation, but nevertheless had led to a real concern for customer satisfaction amongst both financial services and retail banking staff. As mentioned above, the fairly rigorous procedures in banking had been stretched on some occasions to compensate for back shop failures. A little flexibility and greater than required interpersonal skill is not necessarily damaging.

Motivation and control

None of the front line staff gave any indication that banking was their life rather than their livelihood, so extrinsic motivation certainly seemed to be dominant. Against this the fact that staff were prepared to bend procedures and to put

themselves out to achieve customer satisfaction suggests that some intrinsic motivation was present.

The control systems in operation where not extensively investigated, but certainly included, on an individual level, attendance/punctuality, appearance (staff uniforms were in use) and regular formal appraisal by superiors. Errors were certainly monitored and traceable, and customer satisfaction and mystery shopper reports were published on a branch basis with area comparisons. There were also targets for referral of customers to financial services and for sales of financial products. Even staff morale was measured periodically by questionnaire. These measures are all fairly objective and influenceable and probably as complete as it is reasonable to expect. Certainly it is difficult to see what else might be measured. The objectivity and value of the appraisal interview might be questioned, but that is more a matter of the situation than the technique itself.

Evidence was not formally collected on performance standards and they were not explicitly raised in any of the interviews. They were primarily imposed, but mainly as part of the job, i.e. dress code, training requirements, attendance, so it is reasonable to assume acquiescence. The level of difficulty was not apparent, but cannot be too great otherwise it would have been mentioned.

Discrimination source was joint between the staff member and a superior; in particular it appeared that the discrimination process was open and transparent.

In general communication followed the required patterns. Issues were taken up as soon as they arose, rather than being held over to some formal periodic review, and frequent consultation took place between superiors and subordinates. A number of staff commented upon the approachability of their superiors.

The majority of the customer contact activities were seen as important by the staff, it is not clear to what extent other activities were regarded in this light.

Conclusion

Overall the agreement between the predictions of the model and the actual situation is excellent. Only two areas of deviation are apparent. The case of staff seeming to be slightly overtrained in interpersonal skills is primarily a result of the

artifice of turning a continuum into a dichotomy. The greater stress on operations quality issues is related to the very real quality failings in the back shop activities of the bank as a whole. While this data does not prove the model it certainly does nothing to indicate that it is not valid.

9.1.3 The accuracy of the predictions - education

The survey of schools was specifically designed to investigate the relationship between the predictions of the model and variation in quality. The extent to which the model is supported is directly related to those factors found to influence the quality variables measured. The three quality measures adopted are all strongly influenced by external factors, factors over which the individual school has no control and these were corrected for to obtain a residual quality measure whose variation might be related to variation in match with the predictions of the model. These were identified in section 8.3.

Operations Issues

All the schools were labour intensive front shop operations. The actual labour intensity as measured by the student staff ratio had no significant effect upon performance. The quality of the staff number data would, in any case, have made any relationship unreliable.

Quality Types

The model predicts that all quality types are important, but with operations quality being dominant. The data certainly supports the importance of quality in general. None of the measures specifically relate to design quality. Given that primary and secondary education is now largely prescribed by government this is hardly surprising; schools are required to deliver a specified "product" over which they have little direct influence. The importance of operations quality is shown by the very high scores given to direct observation as a means of quality measurement. This is further supported by the high scores given to the direct participants in the

service (pupils and to a lesser extent parents) in the quality constituencies question.

The relationship with quality definitions is less obvious. Neither of the clusters identified could clearly be said to fit any of the quality types. Individually "Doing our job in the best possible way" and " Quality impinges on everything we do and needs to be reflected in every aspect of our work" from the task focused cluster are clearly operations quality related. "All round development of individual child, not only academic skills" and "Quality of teaching and of learning" from the developmental cluster while bridging the process/outcome divide also embody a high level of operations quality. Quantification is perhaps inappropriate, but the data supports the *idea* that operations quality is dominant.

Statistically significant relationships with performance were demonstrated in only two cases. In the case of examination performance the relationship did not directly support the model in that it suggested that those who valued this most highly performed best at examinations. Examination performance is clearly a conformance quality measure.

The other measures of performance showed a direct relationship with the overall importance of quality. Since the dominant element of quality is seen as operations quality this would seem to support the predictions of the model.

Skill Requirements

The model predicts that teachers require interpersonal skills, technical skills and in particular a high level of responsiveness. All teachers must be qualified, and the training and qualification process is intended to develop at least a minimum competence in the technical skills of the discipline of teaching, including the necessary interpersonal skills, and the technical knowledge of the subject area taught. Not all teachers are equally competent, but determining the level of competence of teachers was beyond the scope of the research.

The importance of responsiveness can be deduced in part from the importance of operations quality. Taking a manufacturing analogy, the material input – the pupil – is highly variable in terms of starting specification; aptitude, attitude, intellectual

ability, motivation and prior knowledge are all variable. High quality manufacturing endeavours to ensure that the material input is highly consistent. If it is not then high quality output is only possible with a highly responsive process able to vary to meet the demands of the particular input characteristics, or with a high reject rate. A high reject rate is unacceptable in education therefore a highly responsive process is essential, a situation reflected in the high importance attached to operations quality.

The level of discretion given to staff will reflect the extent to which they are free to respond to the demands of the situation. This is reflected by the questions on individual staff contribution. Here the highest score were given to those elements most related to individual teaching: - Schemes of work (6.18/7), Teaching style (5.9/7) and Priorities in own class/subject (5.8/7).

Statistically significant relationships were found between some or all performance measures and staff contribution to Professional Development, Priorities for Class/Subject and School Priorities. All showed higher quality with higher contribution. What is noteworthy however is that in all cases of internal measures of performance and the majority of cases with external measures, the performance improved with degree of individual contribution.

Again the data supports the predictions of the model.

Motivation and control

The dedication of the senior staff interviewed to their job was very obvious, and the survey answers also suggest a genuine and deep-seated concern for education and for the development of the pupils within the school. The front line staff, the ordinary class teacher may well be less motivated by the task, though it is hard to see what strong extrinsic motivations are present. There can be few people now who enter teaching in the belief that they will enjoy a short working day and long holidays. Extrinsic rewards are always important. Teachers work for their salary and no doubt would wish to regain the respect of society so seriously undermined in recent years. The enthusiasm with which individual teachers have embraced the recent initiative on performance related pay, despite the well argued opposition of

the teaching unions, demonstrates the importance of extrinsic rewards. Despite this, the general perception is that teaching has strong vocational elements.

The control systems in use in schools are complex and multilevel. Many of the most important will be very individual indeed. The teacher responding to the individual needs of the class, or individual students, is constantly setting standards, monitoring outcomes and reviewing action. On a departmental level, daily communication takes place and much of this is likely to involve more or less formal feedback and control information. Certainly all the schools interviewed had formal standard setting and review procedures, but these were seen in part as validating the ongoing activity and communication. In other words the informal systems are probably far more important than the formal systems.

The performance measures used in schools apply equally to the staff as to the student. Student and class observation involve observation of the teaching staff, feedback from parents may well involve comment on staff performance, and academic results can always be traced back to teaching input. The team based ethos of most schools, however, means that performance issues are usually dealt with in a team context, whether this be year based, subject based or key stage based. The only sensor measures that can be considered complete and objective are examination results. How complete these are is however debatable and they can only be considered fully complete if academic attainment is the only objective. It is also very questionable as to how influenceable they are. The research has demonstrated that about 50% of performance variation is due to factors entirely outside the control of the school, never mind the individual teacher. Observation is a much less complete and objective measure.

The difficulty of achieving performance standards was not explicitly considered in the questionnaire, but experience suggests that both primary and secondary education are becoming increasingly challenging, particularly in more socially deprived areas. The questionnaire specifically investigated the contribution to standard setting and a mean score of 5.28/7 suggests a high contribution but the range was wide (1 – 7). While all quality measures improved as the degree of individual contribution to performance standards increased, the relationship was not statistically significant.

The information from the interviews indicated that principals or heads of function carried out the formal review and standard setting role with individual staff, but that most discussion and action takes place within teams on an ongoing basis. Formal results are published to the whole school. The effect is that the source of discrimination (have targets been met?) tends to be dispersed, but always involves the teacher concerned. The other sources will usually include some people who are trusted and credible.

Pattern and speed were not investigated formally but from observation are known to vary but always include the person concerned. The direct control operating within the classroom depending as it does upon the individual teacher, has to be fast, operate within the task cycle and involve the teacher otherwise it is not operating at all. Other issues are dealt with on an at need basis, and the more formal systems tend to operate on cycles dictated by the school year.

The type of activity is usually seen as important by those involved, the heads in particular believe in education, and the evidence is that government and a large part of society agree. The importance actually attributed to quality by the school also shows a positive correlation with all quality indicators. This is statistically significant in the case of the internal measures of quality.

Variety was not measured, and it is difficult to see how such measurement might have been carried out. In one sense the task is constant; topics are delivered, work is marked, meetings are attended, plans and reports are written. Some of these lack variety and even perceived relevance as much of the recent publicity about unnecessary paperwork indicates. The specifics of delivering a class and assessing progress are, however, constantly varying.

Autonomy is reflected in the questions about individual staff contribution. All of these gave average scores above 5/7 with those most concerned with the individual task (Teaching style, Schemes of work) scoring a minimum of 4/7. All areas showed the expected relationship with quality, though not all were statistically significant. The single factor to which these 6 areas reduced also showed a significant positive correlation with both internal measures of quality.

Conclusion

Like banking, the overall agreement between the model and the average situation in schools is excellent with no conflicts at the broader level. More importantly the model makes certain predictions about quality variation, which are in the main supported by the observed influences on quality within the sample.

Statistically significant support for the model was found in the following areas:

- The relative importance of operations quality as evidenced by the relationship with the importance of quality.
- The level of discretion/independence exercised by staff supporting the need for a high level of responsiveness.
- The importance of the activity as measured by the importance of quality.
- The degree of autonomy exercised by staff supporting the prediction of intrinsic motivation.

Many other relationships, while not statistically significant, indicated influences which supported the predictions of the model.

There were few contra-indications.

The relationship between performance and student staff ratio is opposite to that which the model would predict. This does not invalidate the model on the macro scale since all schools were labour intensive as required, but the relationship is troubling.

The relationship between exam performance and exam importance, while perfectly reasonable, does attach rather more importance to conformance quality than to operations quality. Other indicators suggest that operations quality dominates so this is probably simply a manifestation of balance.

9.1.4 Validation of the research proposals

Question 1. Do Operations decisions have a measurable and predictable effect upon service quality? The literature has demonstrated the way in which operations decisions might be expected to effect quality. These predictions were

demonstrated to be compatible with good quality in retail banking. The education data demonstrates that variations in service quality between service providers within the same sector are, at least in part, due to variations in the operation of the service and that these effects can be predicted.

Question 2. Does the effect of such decisions vary between different services, and is this variation is predictable? There was limited indirect testing of this, but the differences between good retail banking and good education predicted by the model were supported on the macro level. On the micro level deviations from predicted best practice in education towards predicted best practice in banking (i.e. moving away from a stress on operations quality towards design and conformance quality, moving away from a responsive, intrinsically motivated operation towards a predictable and constrained extrinsically motivated system), led to a deterioration in quality as predicted.

Question 3 Can a model be developed which will enable these effects to be predicted and measured? The three-dimensional model has been demonstrated to predict substantial effects upon service quality within one service and between two very dissimilar services. The potential for measurement has been demonstrated in some areas.

Overall the main objective has been successfully demonstrated.

9.2 The Application of the Three-Dimensional Model

The three-dimensional model, shown again in figure 9.2, is intended to reflect the needs of Operations in managing and delivering service quality, without disregarding the very necessary concerns of the customer.

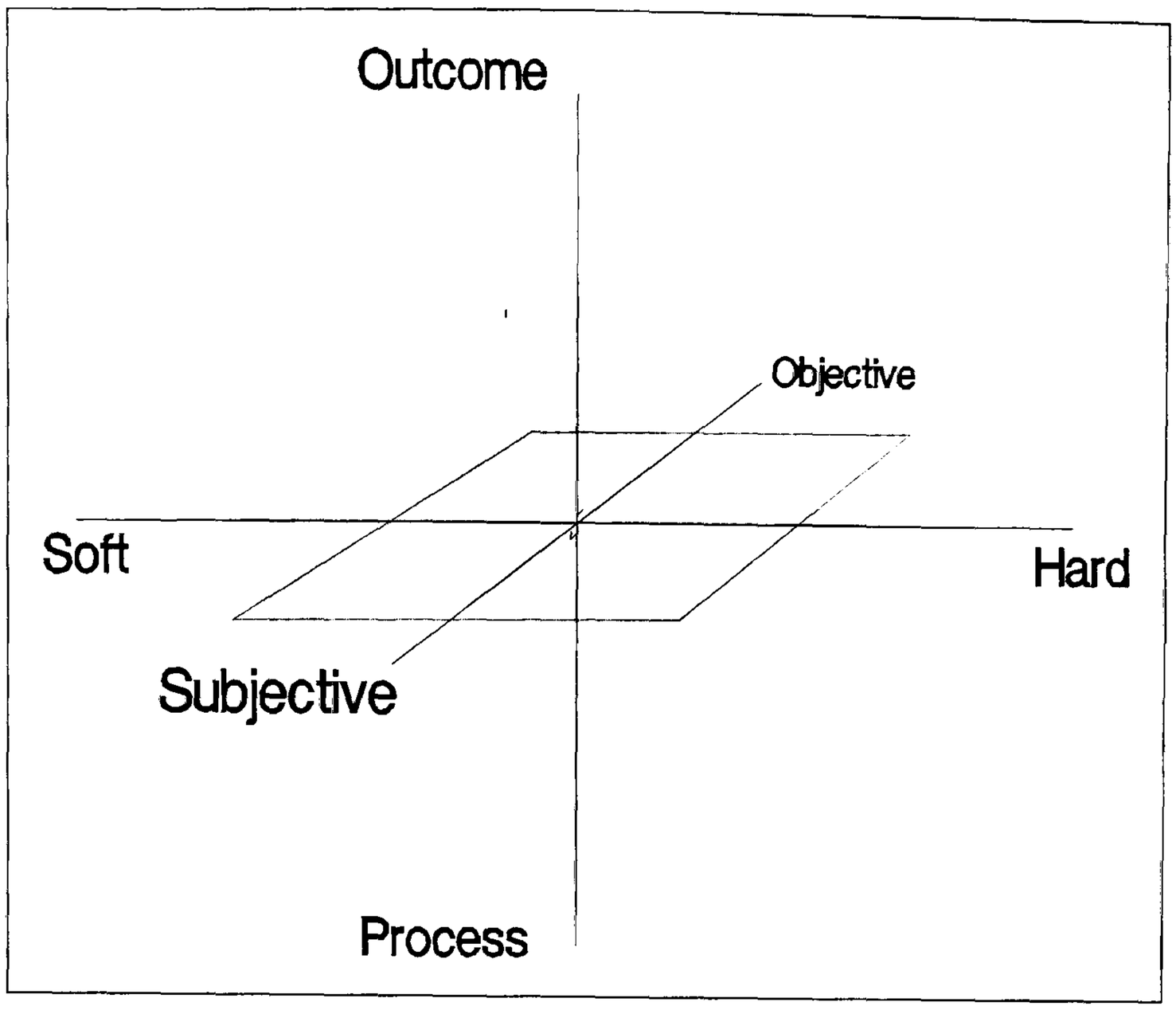

Figure 9.2 The three-dimensional model of service quality

It was argued in chapter 4 that the model incorporated all the major customer based quality issues, but in a way that was far more relevant to operations management than the more usually marketing oriented models. It was also demonstrated in chapter 4 that service operations could be readily mapped onto the model. The model is thus useful in that it forms an accessible template for classifying services. On its own this would be of little importance, it is a necessary but not sufficient requirement to justify the model. What has also been demonstrated in the primary research is that the model successfully predicts operations influences on quality. While this has only been demonstrated in two services, the results are sufficiently robust to suggest that the model may have general applicability.

The model can be used in the following three ways:

In service operations design it can be used to map the requirements of the market and from this inform operations decisions on such areas as automation, front shop/back shop split, labour skill, labour autonomy and reward and control systems. An appropriate matching of these to the market requirements ab initio should reduce start-up costs and

accelerate the learning curve when entering a new market, thus increasing the chance of success.

In diagnosis of service quality failure, the model can be used to identify in the first instance if the failure is structural. If the actual service provision and the market requirements are both mapped onto the model, then any serious mismatch will become apparent. While not guaranteed to be the cause of failure, a negative mismatch, one where real market requirements were not being met, would certainly be a very promising candidate for further investigation. The model can also be used to investigate possible internal inconsistencies within the service operation. It has, for example, already been suggested that the use of performance related pay in teaching is incompatible with a service which depends upon high levels of intrinsic motivation, and is likely to lead to dysfunctional effects.

In general monitoring of efficiency it can indicate areas where the service operation is providing outcomes which, while not contra-indicated, are not actually required. For example it was suggested in the consideration of the banking interview data that the exercise of interpersonal skill by staff was probably greater than the market required. This is not a bad outcome unless it is consuming resources which might otherwise be deployed in improving more relevant areas, or simply incurring cost with no obvious return. In general a positive mismatch represents wasted resources. Alternatively, in a competitive market, a positive mismatch could be used as an opportunity to gain competitive advantage if the market can be persuaded to value it.

It is therefor argued that the model could make a significant contribution to the design and operation of efficient and effective services.

9.3 Quality in Primary and Secondary Education

The influences on quality in education are subsidiary to the main thrust of this research. Education was chosen as an example of a service rather than for

investigation in its own right, however, important insights have emerged from the work.

It should be stressed that these apply strictly only to schools within the Leicester, Leicestershire and Rutland area where there is every reason to suppose they have general applicability given the sample size and proven lack of bias. There is however no reason to suppose they are not generally applicable.

Most striking is that fact that nearly 50% of the variation in examination performance is attributable to factors outside the control of the school. The impact of these factors is difficult to compare. Simply using the reduction in variance does not allow for the fact that only a very few schools were selective, while trying to establish the absolute magnitude of an effect on a standardised measure is also problematic. The percentage changes that the most important factors would make on a performance scale based upon -3σ as zero and +3σ as 100 are shown in table 9.5. The maximum relative advantage shows how much better the examination performance of a school at the best extreme would be than that of a school at the worst extreme.

	Absolute Advantage %	**Maximum Relative Advantage**
Free School Meals	-4/10%	98
Statements	-18/10%	36
Selectivity	20	40
Type	17	34

Table 9.5 External influences on exam performance

The effect of selectivity and type are absolute values and were arrived at after adjusting for free school meals and statements. The exam results of selective schools are on average 40% better than non-selective schools. Quite independent of all other influences non-state (i.e. private, voluntary aided, direct grant) produce examination performance 34% higher on average than state schools. The other effects are proportional to the numbers in the school, i.e. a school with no children with free school meals would produce results 98% better than the worst reported case of 75% free school meals; a school with no statemented children would

produce results 36% better than one with the maximum observed case of 10% of statemented children.

The internal influences are less marked, in part because they are no doubt far more complex than the research instrument. They are also much more prone to individual variation which no general instrument could reasonably pick up. There are, without doubt, poor teachers and good teachers just as there a poor pupils and good pupils, but while all but the smallest schools have several hundred pupils, and would therefore show a relatively small standard error relative to the average for their catchment, the influence of individual teachers is much greater when there may be ten or less in the school.

The evidence from the research suggests that higher performance in schools is linked to the following:

- Academic staff responsibility. In general senior academic staff should not be given administrative responsibilities which could otherwise be carried out by administrative staff. This depresses examination performance in particular.
- Arranging responsibilities on the basis of Key Stage seemed to be counterproductive, depressing the school's perception of its comparative performance.
- Arranging responsibilities in terms of curriculum produced better perceived performance in primary schools (all secondary schools adopted this).
- Arranging responsibilities by year group had a positive influence on all quality indicators in secondary schools.
- The greater the contribution individual staff are allowed to make to the school, the better the performance. Performance is also greater with a greater degree of team ethos.
- The schools perception of quality is an important influence with those seeing it as more important performing better in their own opinion. Those who adopt a more task centred definition of quality, rather than a personal development approach, also perform better.

- Those who value examination performance highly as a measure of quality tend to perform better at examinations.

Interpretation of these results is not straightforward, since even if causality is assumed in many cases the direction of causality is uncertain. Dependence upon subjective internal estimates of performance always raises the possibility of self-deceit. A school with a strong team ethos might feel like a good place to be, but may not actually be performing well to any external criteria. Even with external criteria such as examination performance, a school may value exam results as a quality indicator precisely because it does well at exams, rather than vice versa. The reasonable correlation between the internal and external measures used suggests that they are in general fairly reliable, but the best that can be said of the above factors is that they are worth investigating cautiously as a means of improving performance.

9.3 Methodological Issues

In general the research used standard and well-established methodologies, and little of note comes from their application. The following issues are, however, of some significance.

9.3.1 Likert scales

The five point Likert scale is the most common, and the seven point scale used in this research is fairly uncommon. The rationale behind the scale, that it would give more discrimination if responses were heavily skewed, was supported by the outcome. In particular it is unlikely that the sensitivity of quality to team ethos would have been detected with a 5 point scale.

9.3.2 Questionnaire response

The response was very high for a postal self-completion questionnaire. The literature generally suggests that topic interest is a factor in this and the topic certainly seemed to be of a high level of interest. This would also suggest that that

the actual responses were well considered. The use of a stamped addressed return envelope rather than a business reply envelope no doubt also contributed to the high return.

Matching the instrument to the intellectual capability of the respondent is also a requirement for a good and reliable response. The target audience were all highly qualified professionals and the instrument was not unduly complex, yet a surprising number seemed to misinterpret the Likert scales initially, and one seemed to have no concept of their purpose. What was perhaps most disappointing was the number who failed to appreciate that an 8 page questionnaire had 8 pages and missed the central two pages altogether. Perhaps the conclusion to be drawn is that no audience, however well qualified, will always get things right.

9.3.3 Analysis

The analytical techniques used were well established, though not without their critics. Given the number of tests carried out, some of the significant results are bound to be spurious.

In using principal components analysis, the simplest approach was used quite deliberately on the assumption that if this did not yield an interpretable model then there was probably nothing of substance worth seeking. All the models found were rational and easily interpretable.

The separate correction for significant dichotomous variables, and for quasi-continuous variables perhaps begs questions of sequence and multicollinearity, however it was felt to be preferable to treating the dichotomous variables as if they were continuous – a facility allowed in SPSS. In fact the method and sequence had very little effect. Even treating each significant regression variable as a separate linear regression gave final residuals that correlated to 0.98 or better. Given this, it can be concluded that the identification and correction for external variables is robust.

Perhaps most disturbing were the findings from cluster analysis. Non-hierarchical methods are noted for their sensitivity to the choice of initial cluster seeds which

in its turn depends upon case order if the package default is used. This was amply confirmed with this data when a different cluster set could be obtained with each sorting of the data. A method so sensitive to completely arbitrary influences can hardly be considered legitimate. More disturbing was the fact that the same effects were observed with hierarchical clustering. The final solution, when clustering cases, depended to a degree upon the data sequence. Clustering variables gave more robust and reproducible clusters which were insensitive to case sequence, and certainly easier to interpret. It may well be that the clustering within the data set was relatively weak and that this exposed a weakness in the technique, but the general conclusion is that cluster analysis, even more than principal components analysis, can be used to give any outcome required.

9.4 Recommendations

9.4.1 For Further Research

The three-dimensional model of service quality has been demonstrated to fit both retail banking and primary/secondary education. In retail banking it was shown to correspond broadly with the situation in a group of banks noted for their 'high' quality. In education it has been shown to explain variation in performance between service providers. It has also been shown to link well with operations issues and decisions. The evidence cannot be considered exhaustive, but there is certainly enough evidence to suggest that this is a valid and valuable model of service quality which would repay further study. In the first instance demonstration of its ability to predict quality variation in another service sector would greatly strengthen its claims to universality.

9.4.2 For Primary and Secondary Education

Until such time as external performance measures take account of starting point (so called added value measures), any school seeking to improve examination performance should rationally:

> Manage its admissions policy to reduce intake from socially deprived areas.

Reduce the number of statemented children on roll, preferably to zero.

If still under direct local education authority control, become grant maintained or voluntary aided.

Most of these actions are, however, not available, and most schools would see their duty to the community as a whole as preventing them taking such steps. Nevertheless the current policy of measuring school performance by raw exam performance league tables suggest that this action would be rational

Actions which schools can take to improve both examination and perceived performance include:

Avoid giving senior academic staff administrative responsibilities which could otherwise be carried out by administrative staff.

Arranging responsibilities on the basis of curriculum and year group, but not on the basis of key stage.

Maximise the contribution individual staff are allowed to make to the school.

Encourage a team ethos.

Adopt a positive view of quality in general and a positive view of examination performance.

Adopt a task focussed view of quality rather than seeing it purely in terms of personal development.

Schools do not exist in a vacuum, and regrettably, many of the actions proposed and taken by government, ostensibly to improve standards, would appear to be counterproductive. The aim of this research was not to produce a reasoned critique of educational policy, so the following should be considered very tentative, but the research predicts that the following actions are counterproductive and should therefore be discontinued.

Using raw examination performance as a key indicator of quality. The research suggests that this fails to satisfy the essential requirement of being influenceable.

Incentive payments, currently being introduced, are contra-indicated in an occupation which depends heavily on intrinsic motivation. They are

also inappropriate without unambiguous, trusted and influenceable performance measures. There is no evidence that these are available. Prescription (for example the literacy hour, numeracy hour) runs contrary to the requirement for discretion on the part of teaching staff. The inspection process, which is largely critical and confrontational, and lacks performance measures which are unambiguous, trusted and influenceable.

There is anecdotal evidence for the counterproductive effects of examination performance league tables. The key measure used in these is the percentage of pupils gaining 5 A-C grades. It is widely believed that this leads to schools concentrating effort on those pupils who are on the margin of achieving this, mainly those who will clearly get D but with a little effort might make it a C. Those who will clearly do well and those who have little hope of achieving this target are, relatively, neglected. This is classic control system dysfunction, usually described as strategic behaviour (Lawler and Rhodes (1974)). The measure of performance will be even further degraded by Government plans to change the base line for school rolls this year (verbal information from local Headteacher). Schools which permanently exclude pupils will be forced to carry that pupil on their roll for exam performance calculation purposes, but the exam results achieved by such pupils will be credited to schools they actually attend at the time of examination.

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Appendix 1 Bank Interviews

Customers

If I can start by introducing myself, I am Les Galloway and I am doing research into quality in banking with De Montfort University. I am not connected with TSB but they have agreed to help by giving me access to customers. The bank will get a summary of my findings, but I will not quote you in a way which would be identifiable. This is not a conventional market research interview where I ask questions and you give answers, so it is absolutely essential that I record it. I hope you have no objection to this. What I would like to do is spend a little time - no more than an hour - discussing with you the quality issues in banking which you feel are important.

Perhaps we could start be asking what quality in banking means to you.

Have you had any experiences of good quality recently? Describe them. Why are they good?

Have you had any experiences of bad quality recently? Describe them. Why are they bad?

How important is quality to you?

What sort of behaviour by the bank would make you seriously think about changing banks? How bad would it have to be? Why would less than this allow you not to change?

What sort of information about another bank would make you think about changing to them? Why this and not something else? Why this level?

Possibly useful background information:

Age, sex, employment status.

How long have you been with TSB? What accounts do you have? What other banks are you with. What accounts do you have?

Staff

If I can start by introducing myself, I am Les Galloway and I am doing research into quality in banking with De Montfort University. I am not connected with TSB but they have agreed to help by giving me access to customers/staff. The bank will get a summary of my findings, but I will not quote you in a way which would be identifiable. This is not a conventional market research interview where I ask questions and you give answers, so it is absolutely essential that I record it. I hope you have no objection to this. What I would like to do is spend a little time - no more than an hour - discussing with you the quality issues in banking which you feel are important.

Perhaps we could start be asking what quality in banking means to you.

Why do you think these are important to customers?

What do you think would cause customers to move to other banks?

What do you think the bank must do to attract customers from other banks?

How do you go about ensuring that you give a good quality service?

What would help you to improve this?

What obstructs you?

Possibly useful background information:

Age, sex, employment status.

What is your position? How long have you held that position? What other positions have you held (and for how long)?

Appendix 2 School Interviews

Thank you for your time. This interview is completely confidential and no information will be given to a third party in an identifiable form without your permission. It will help me if I can record this, but if you have any objections at all I will rely on notes. It should take no one than 1 hour, but I would like to send you a summary of my record for your confirmation in a week or two.

Objective is

To determine your view of quality.

To model the formal and informal control systems operating on front line staff.

To link these to quality issues. I am looking for your understanding of how the system operates within this school. (For the purposes of the exercise, control systems are any systems, procedures, reports etc. whether formal or informal, which are intended to, or do, affect the task based behaviour of staff.)

Quality

What do you think quality means in the context of the school?

What sort of issues do you think determine quality in the service the school provides?

How important do you think quality is?

How much contribution do you think you personally make?

How good do you think the school is?

Information and Control

How do you communicate with staff - form, frequency, formality, routine/exception, documents, advice, command?

What formal communications do you receive/make to others within the school?

How do you actually monitor the performance of staff you are responsible for?

What action would/do you take if a member of staff is not performing adequately/is performing very well?

How well specified are the parameters which enable you to decide that action is necessary? Who by? Are they appropriate?

To what extent do you feel you need to seek advice/authority to carry out particular actions? Why? Do you?

To what extent do you feel the need to co-ordinate your action with other people? Why? Do you?

To what extent do you feel that these communications help or hinder you?

To what extent do you think they help you maintain/improve quality?

What would help?

Appendix 3 Questionnaire and Covering Letter

May 1999

Dear Headteacher,

The enclosed questionnaire forms part of a research project investigating the links between operational issues and service quality. It is supported by the City of Leicester Education Authority, and has been designed with the collaboration of a number of Leicester Headteachers.

The questionnaire asks a number of factual questions about your school, its catchment, organisation and operation, and a number of questions seeking your personal opinions on quality and performance and the role of the Headteacher. It is hoped that this will be information you have readily to hand, and should therefore take no more than 15 minutes to complete.

Since this information will be combined with published data about your school's performance, it cannot be anonymous, but all answers will be treated as confidential and individual replies will be seen only by myself.

While forming part of a larger research context, it is hoped that insights will be developed into the relationship between organisational structure, operations and quality within schools, and a summary of the findings will be made available if you request it.

A stamped addressed envelope is enclosed for your reply, and it would be appreciated if you could reply within two weeks.

Thank you in anticipation for your assistance.

R L Galloway

Principal Lecturer

Quality of Service in Primary/Secondary Education

DE MONTFORT UNIVERSITY
LEICESTER

Faculty of Business and Law
Department of Corporate Strategy

Please return to;
Les Galloway, De Montfort University, Faculty of Business and Law, The Gateway, Leicester LE1 9BH.

If your school is a Community College, please disregard any specifically Community issues in answering the questions.

A About Your School

1. Number on roll (to nearest 10) ☐

2. Age range *from* ☐ *to* ☐

3. Is the School *Mixed* ☐ *Girls* ☐ *Boys* ☐

4. Is the School selective by academic ability *Yes* ☐ *No* ☐

5. Type of school
   Independent ☐ *Grant Maintained* ☐ *State* ☐
   Voluntary Aided/ Special agreement ☐ *Special* ☐ *CTC* ☐

6. Catchment

Inner city ☐ *Suburban (Council)* ☐ *Rural* ☐

Suburban (private) ☐ *Other* ☐

7. Number of academic staff ☐

8. Number of technical and administrative support staff ☐

9. % pupils receiving free school meals ☐

10. % pupils from homes where the first. language is NOT English ☐

11. For how many years have you been head/principal of the school? ☐

B. Quality

12. A school can be said to provide a service to a number of different constituencies. On a scale of 1 to 7, where 1 is least important and 7 is most important, show how important you feel it is to satisfy each of the following groups.

	1	*2*	*3*	*4*	*5*	*6*	*7*
Pupils							
Parents							
Local Authority							
Ofsted							
Government							
School Governors							
Employers							
Other							
(please specify)							

13. Quality is not easy to define. The following are a number of statements about quality in education. Please indicate a **maximum** of four which you **most** agree with, by putting a cross in four boxes..

Doing our job in the best possible way	☐
All round development of individual child, not only academic skills	☐
Continuously to improve what we offer	☐
Quality impinges on everything we do and needs to be reflected in every aspect of our work	☐
Quality of teaching and of learning	☐
Quality of relationships	☐
Getting that bit more out of people, whether staff or students, than they think they're capable of	☐
Key indicator of quality is levels of satisfaction from customer, OFSTED, governing body.	☐
Deliver to the vision developed with governors, parents, staff	☐

If you wish to add one, brief, definition of your own please do so here:

14. On a scale of 1 to 7, where 1 is not at all important and 7 is extremely important indicate how important do you believe quality is to your school?

1	*2*	*3*	*4*	*5*	*6*	*7*
☐	☐	☐	☐	☐	☐	☐

15. Show the usefulness of the following procedures used to measure the quality you are achieving on a scale of 1 to 7 where 1 is not at all useful, and 7 is extremely useful. If a procedure is not used, leave blank.

	1	2	3	4	5	6	7
Tracking academic performance of individual children	☐	☐	☐	☐	☐	☐	☐
Tracking behaviour of individual children	☐	☐	☐	☐	☐	☐	☐
Questionnaires to parents	☐	☐	☐	☐	☐	☐	☐
Observing student response in lessons	☐	☐	☐	☐	☐	☐	☐
Regular classroom observation	☐	☐	☐	☐	☐	☐	☐
SATs	☐	☐	☐	☐	☐	☐	☐
Examination performance	☐	☐	☐	☐	☐	☐	☐

16. On a scale of 1 to 7, where 1 is very poor and 7 is excellent indicate how good you think the overall performance of your school is at present.

1	2	3	4	5	6	7
☐	☐	☐	☐	☐	☐	☐

17. On a scale of 1 to 7, where 1 is very poor and 7 is excellent indicate how well you believe you are doing overall compared with similar schools.

1	2	3	4	5	6	7
☐	☐	☐	☐	☐	☐	☐

18. On a scale of 1 to 7, where 1 is very little and 7 a great deal indicate what potential you see for improvement.

1	2	3	4	5	6	7
☐	☐	☐	☐	☐	☐	☐

19. On a scale of 1 to 7, where 1 is quite unimportant and 7 is essential indicate how important it is to you that you achieve this.

1	2	3	4	5	6	7
☐	☐	☐	☐	☐	☐	☐

C. The Organisation of the School

20. How many senior academic staff do you have, including yourself? ☐

21. Are responsibilities based upon

Curriculum ☐
Year group ☐
Key stage ☐
Administrative function ☐
(i.e. timetabling, budgets)
Other ☐

(please specify)
Please indicate all that apply.

22. Do senior staff usually take responsibility for more than one area?

Yes ☐ *No* ☐

23. Do you have a formal senior management team?

Yes ☐ *No* ☐

if No go to question 27

24. What is its composition?

Number of	*academic staff*	
	non-academic staff	
	governors	

25. How frequently does it meet?

Daily	☐
Weekly	☐
Twice a week	☐
Monthly	☐
As required	☐

26. Are the meetings usually open to other members of staff?

Yes	☐
No	☐
by invitation	☐

27. Please indicate the extent to which individual staff contribute towards decisions on policy and practice in the following areas, using a scale of 1 to 7 where 1 is not at all, and 7 is complete responsibility.

1 2 3 4 5 6 7

schemes of work

☐ ☐ ☐ ☐ ☐ ☐ ☐

teaching styles

☐ ☐ ☐ ☐ ☐ ☐ ☐

educational priorities for own class/subject area

☐ ☐ ☐ ☐ ☐ ☐ ☐

educational priorities for school

☐ ☐ ☐ ☐ ☐ ☐ ☐

professional development

☐ ☐ ☐ ☐ ☐ ☐ ☐

setting targets for own performance

☐ ☐ ☐ ☐ ☐ ☐ ☐

28. Please indicate the extent to which the ethos and operation of the school is based upon individual effort or team effort, using a scale of 1 to 7 where 1 is completely individual, and 7 is completely team based.

1 2 3 4 5 6 7

☐ ☐ ☐ ☐ ☐ ☐ ☐

29. Please indicate what you consider most important for "A Good Headteacher/Principal". Choose a maximum of seven from the following list.

Handles conflicts openly	
Creates vision	
Fully informs staff of decisions	
Accepts new ideas	
Gives continuous feedback of results	
Creates a climate characterised by trust	
Stimulates discussion among staff members	
Stimulates individual achievement	
Makes sure plans and rules are followed	
Lets staff members participate in decisions	
Able to make quick decisions	
Careful preparation before a decision	
Honest communication (no dagger in the back)	
Flexibility	
Gives responsibility to staff members	
Strong dedication to work	
Clarifies relevant claims	
Creates order and structure	
Is cautious in action	
Is a careful planner	
Has a sense of humour	

30. If you want a summary of the findings of this research, please print your name:

.....

Thank you for your help.

Appendix 4 Questionnaire Structure

	Information	Reason
Organisation		
1	Size	Influences structure and level of attention
2	Age range	probable structural influence and client group
6	Location	likely to influence client group
7,8	Staff	SSR, ratio of teaching to support - attitudes a values
11	Length of Service	of Head - likely influence, reliability - recency
3,4,5	Type	Special, Private, Voluntary aided etc. - influe client group
9	Number on free meals	Measure of deprivation/starting level
10	First language	measure of starting level
Perceptions of quality		
12	Who are clients	what drives perception/attitude
12	Relative importance	ditto
14	How important is quality	emphasis/attitude
13	What is quality	ditto
15	How measured	relevance, confirmation of importance
16	How good	Own opinion/ compare with external measures
18.	Improvement potential	confirmation
19		
17	Relative standing	confirmation
Control structure		
20	Number of senior staff	Hierarchy
21,22	Division	ditto
23	Senior Management Team	formality, structure
25	Meetings - frequency - function	determine degree of authority/hierarchy

24	- composition	
26	- formality	
27	Discretion	ditto
27,28	Decision making/ethos	centralisation/delegation
29	management style	centralisation/delegation

Appendix 5 Some Keywords and Their Context

access	information you want is either accessible
annoy	the customer gets very annoyed
anticipate	anticipate what their requirements are in the future
assist	they will assist the customer, because .. if the customer had lost their job ...
attitude	to adopt a couldn't care less attitude
awar	or they weren't aware of the charges structure
bad	the only bad experience I had
best	they do their best to open another till
better	whatever the customer usually gets is better than what we get
bewilder	especially the elderly because they are bewildered by all that's happening
blame	the customers that blame the bank are the bad ones
blunder	one bank in particular has made a big blunder
body language	its not just being polite its body language
care	problem is raised elsewhere ... which affect the procedures they don't care about it whether anybody is cared for in the same way
check	they checked and said yes its our mistake
civil	to me civility ... is the most important thing
clear	this isn't quite clear, please will you explain
cock (up)	if it was continual cock-ups and I'd got to waste my time
complain	if we couldn't satisfy the customer's complaint
concern	to me is the most important, if they care, concern
contact	ones they can't answer straight away they will get in contact with you
control	which is control and monitoring of bad and doubtful debts
convenient	it was nearer home .. so it was more convenient
correct	I have to know how to do the job .... correctly
critic	you do not criticise
customer	because they knew I was a customer here
delay	say there will be a delay and that was it
dislike	get your money from the wall... I've taken a dislike to them
dissatisf	your looking at 300 dissatisfied customers
don't know	you don't know they're charging you

eas	they have made my life much easier
error	they've put that error right
ethos	the ethos of the building when you walk in
explain	whereas here everything is explained
face to face	after the initial face to face contact of myself or my colleagues
family	with the employees part of a family
fault (couldn't)	I couldn't fault them one inch
fault	I don't think its all the banks fault
fear	then there is a fear of the unknown, if I move from bank A to bank B
fed up	I was fed up with what was going on
first time	right every time at the first time of asking
forthcoming	when you ask they were not really forthcoming
forthright	the way they treat the clients ... are they forthright?
friendly	yes they are very friendly
frustrat	and is also frustration for the customer
good	again a good service
guideline	we basically have to follow strict guidelines
hassle	if people are hassling them
head down	they've just got their head down and they don't lift them up
help	to me helpfulness .... is the most important thing
hours	and the hours are suitable
how they tell	they maintain that service according to how they tell you
idiot	if you get the idiots at the end of the purse strings
improve	just needs to improve it here
individual	they treat you as individuals
inefficien	they're sociable without being inefficient
inform	may not have felt confident with the .. information they were being fed
interest	we will have your money, but we're not really interested in you
irritate	that can irritate people immensely
joke	and you can have a joke
kind	to me kindness ... is the most important thing
know	you know what a product actually is and also who does what within the branch
knowledge	there is a need for more knowledge and a bit more help

learn	they would treat it as a learning process
look	its the way you look ... are you smartly dressed
look after	if they can't look after £40
love	they love and care, love in the general Christian
mistake	and said yes its our mistake
monitor	I'm monitored as an individual by my supervisor
mood	having just been served by moody cashier
more	things that pleased me more than anything
nasty	when we start sending nasty letters out
need	to satisfy the customer need
negative	I had a problem and they were just negative
not good	I used another bank .. and they were not good
over and above	they will give you over and above what you ask
perfect	to me this is a perfect bank
personal	the personal touch has never been lost
please	the things that pleased me more than anything
polit	I have to be obviously polite
pressure	pressure is put on you not to change
problem	they were supposed to get all the teething problems on us
procedures	I've still got set procedures to follow
professional	we are known as professionals within the admin
promise	if the bank give me what they've promised me that's all I look for
proper	as long as you know you've done your job properly
provide	it does help us provide a service to a customer
push	if they say no they don't push it
quality	our quality checks we have in the branch
really	what they really do need
reasonable	they couldn't give me reasonable grounds for refusing
recognise	they recognise many people
rectif	send out a new one ... and it rectifies the problems
refuse	I knew I could afford it and the bank refused it
regulat	I am kind of regulated what I will do
requir	I've also got er the customers requirements in several different ways
respect	the young ones I've talked to respect the elders
responsib	they've got a very responsible job

right	and they've put that error right
rubbish	you do not say that is rubbish
rude	they'd have to be rude to me
rule	banks rules are often fixed cos we are monitored
satisf	which hopefully will satisfy the customer
secur	now I am financially, I'm secure
service	that's what I call service and trust
smart	are you smartly dressed
sociable	they're sociable without being inefficient
solution	is my idea or solution better
solve	if I want any problem solved I'd come here
sort	tried to sort it out
spen(d time)	he spent a while with me and he filled it in for me there and then
stability	it is the financial stability it is a financially stable bank and that is important
standard	they're all the same standard
strict	we basically have to follow strict guidelines
stringent	a lot of the rules are very stringent
succe	we do seem to have quite a success
suitable	the hours are suitable
superior	this bank came out far superior in all ways
support	does give us very good support in our training requirements
tact	you have to be very tactful because you don't know what their circumstances are
take it or leave it	it was like that you take it or leave it
teach	there's a lot of self teaching ... experienced teachers probably a lot having the technicality behind it
tension	there is a tension between staff and clients
there and then	he spent a while with me and he filled it in for me there and then
threat	pressure is put on you not to change, so you're threatened
track record	have to look at their track record
train	all our training has been geared to supplying a service
treat	another important thing is the way, the way they treat you
trouble	I've never had any trouble since
trust	the trust I think is important between customer and the bank

understand	they don’t understand that they would find it very difficult to open a current account
unsatisfactory	which is an unsatisfactory situation
want	they've given everything I wanted here
waste time	I'd got to waste my time keep coming
willing	they are willing to say I’m sorry we have made a mistake
wrong	find out what had gone wrong

Appendix 6 The Schools Interviewed

School 1

A mixed 11-16 school, serving a predominantly council estate suburban catchment area. About 700 pupils. Interviews both with the Principal and the Vice-Principal responsible for pastoral care.

School 2

A mixed 11-16 school, serving a mainly private suburban catchment. About 1200 pupils. Interview with a Vice-Principal who stood in for the Principal who was ill.

School 3

A single sex (girls) 11-16 school, serving a mainly suburban private catchment. About 1000 pupils. Interview with the Principal.

School 4

A mixed 3-11 school, serving a mixed inner city catchment, in a heavily Hindu area. About 550 pupils. Interview with the Principal.

School 5

A mixed 3-11 school, serving a mixed inner city catchment, in a heavily Muslim area. About 700 pupils. Interview with the Principal

Appendix 7 Letter Requesting Interview

Dear

I am currently engaged upon a research project into service quality in education. Eddie de Middelaer, head at Hamilton, has suggested that you might be willing to assist.

Initially I wish to carry out a short interview with you on issues connected with quality and management structure in your school. I enclose a short briefing paper to give you some background on what I am trying to achieve, and what I am expecting from you.

I realise how much pressure Headteachers are under at present so I do not expect you to do any preparation for the interview - I am seeking your opinions on quality, and assume that you are well enough acquainted with the operation of your school to answer questions on management and structure without preparation.

The interview should not take more than 30-45 minutes and will be completely confidential. I would, however, like to record the interview - primarily so that I do not have to waste your time taking notes, or rely on my fairly fallible memory.

In anticipation of a positive answer, I will telephone in the near future in the hope of arranging a convenient date and time for the interview.

Thank you for your help.

Yours sincerely

R L Galloway

Principle Lecturer

Appendix 8 Interview Briefing

Service Quality in Education

The objective of the research is:

> To establish the relationship between the internal organisation and control of a service provider and the perceived quality of the service.

This is being tested in primary/secondary education in the first instance because:

> There is a wide variety of organisational structure, size, market characteristics and management styles within the field.
>
> There is a wealth of secondary data purporting to reflect aspects of quality.

It is recognised that the secondary data is flawed and does not necessarily reflect all aspects of quality, so a secondary objective is:

> To establish the service providers' perceptions of the components of service quality and of their achievement.

The primary data collection will be via a questionnaire distributed to all schools within the city and the county.

The purpose of the interviews is to seek preliminary information on:

> Your perceptions of the nature and relevance of quality within your sphere of education.
>
> The general nature and structure of the control and management processes within your school.

Interviews are being carried out with a number of Headteachers of primary and secondary schools to provide background information for the questionnaire design.

All information will be treated as confidential.